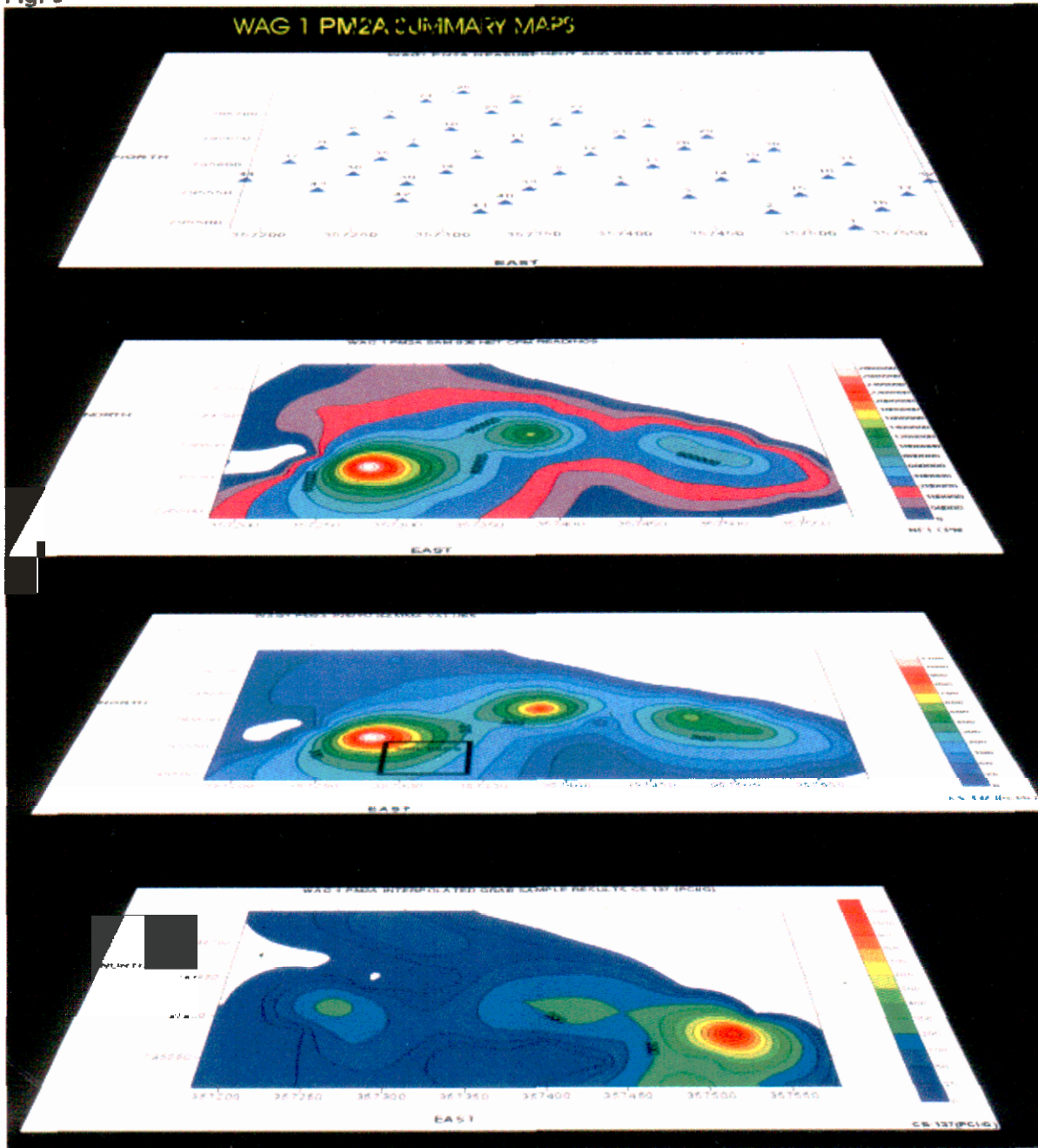


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**Fig. 6**



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Appendix 1: Data from PM2A area. Uncertainties are at the one sigma level.

ID	northing	easting	CS-137	1-SIG	% DEAD	CS-137 GRAB	1-SIG	SAM 935 GCPM	SAM 935 NCPM	BKD	WT	SAM PCI
1	795490.43	357526.73	12.1	0.6	4	ND	ND	76265	0	76265	59.9	
2	795515.97	357483.77	73	0.9	7	410.0	23.3	181938	105673	76265	72.1	387.4
3	795541.72	357439.36	36	0.6	5.5	20.3	1.2	139461	63196	76265	58	12.5
4	795564.63	357401.35	48.8	0.8	8.3	9.3	0.5	201793	125528	76265	62.6	10.4
5	795583.4	357366.36	139.5	2.9	16.8	100.0	5.8	469240	392975	76265	65.7	88.2
6	795614.77	357317.34	167	1.5	19.4	33.8	1.9	546021	469757	76264	58.3	27.0
7	795637.53	357278.01	66.8	1	10	4.8	0.3	288427	212163	76264	53.8	12.2
8	795660.92	357240.57	46.2	1	7	0.7	3.7	189427	113163	76264	49.4	16.9
9	795695.11	357261.37	46.3	0.8	7	9.5	0.9	141846	65582	76264	50.8	12.7
10	795668.94	357300.09	57.2	0.9	7	11.3	0.6	213576	137311	76265	64	10.5
11	795645.38	357341.3	149.5	1.4	14.9	16.6	0.9	456076	379811	76265	62.1	11.1
12	795618.56	357385.46	896.5	3.9	50	201.0	11.2	1624158	1547894	76264	55.6	181.1
13	795595.68	357421.82	18	1.6	14.6	260.0	9.1	372450	296185	76265	82.9	238.4
14	795571.77	357460.59	256	1.7	16.6	121.0	4.2	309333	233068	76265	70.4	115.8
15	795544.99	357502.71	193	1.2	13.1	225.0	7.4	323255	246991	76264	70.6	210.3
16	795520.38	357546.08	52.7	0.7	5.5	99.5	6	134090	57825	76265	82.4	88.8
17	795545.74	357564.72	108	0.9	8.4	158.0	9.4	272560	196296	76264	71.1	138.5
18	795575.85	357522.82	439	2.3	23.9	1280.0	76	862037	785773	76264	65.3	1226.8
19	795605.26	357482.09	573	2.7	25.5	NA	NA	888306	812041	76265	NA	#VALUE
20	795628.73	357442.59	138	1	10.2	170.0	9.2	189200	112932	76268	65.5	161.2
21	795651.09	357405.19	195	2.1	23	98.6	5.5	279219	202955	76264	65	88.0
22	795677.45	357366.36	98.1	1.3	10	29.9	1.7	256621	177633	78988	63	11.8
23	795703.96	357325.66	38	0.8	5.6	105.0	6.3	172280	93292	78988	64.4	95.8
24	795728.62	357283.34	52.2	0.9	5.6	96.9	5.6	157465	78477	78988	57.9	94.7
25	795748.43	357306.78	36.5	1.6	0.6	37.4	2.1	155282	76294	78988	67.2	11.6
26	795727.4	357341.81	24.8	1.5	4.2	17.1	0.9	121136	42158	78978	54.3	12.6
27	795703.12	357380.32	30.3	0.6	5.5	29.8	0.9	124452	45467	78985	58.4	12.4
28	795673.94	357424.4	41	0.5	5.6	43.3	2.7	143059	64071	78988	58.1	13.6
29	795651.54	357458.51	45.5	1.1	5.9	76.1	4.3	149242	70254	78988	54.6	71.7
30	795626.63	357496.63	79.7	1.4	7.9	33.9	1.9	204632	125644	78988	63.3	11.8
31	795598.99	357537.91	81	1.5	7	22.3	8.5	156237	77249	78988	57.2	12.3
32	795569.16	357580.73	21.7	0.8	4	7.6	0.5	82632	3644	78988	67.5	10.0
33	795557.41	357347.94	189.4	2.6	22.8	5.1	0.4	687587	608599	78988	61.6	10.8
34	795586.47	357299.47	557	4.7	42.6	NA	NA	1329149	1250211	78938	NA	#VALUE
35	795611.46	357260.01	102	1.8	11.1	311.0	9.7	376980	297992	78988	74.8	290.2
36	795633.31	357222.55	34.8	0.8	5.5	32.5	1.9	153536	74548	78988	61.5	12.2
37	795605.65	357205.8	21	0.8	4.2	4.3	0.4	130433	51445	78988	66.6	0.0
38	795584.22	357244.8	46.5	0.7	8.1	21.8	1.3	164028	85040	78988	93.5	
39	795566.45	357276.94	1256	17.7	71.6	105.0	5.6	3229873	3150885	78988	73	
40	795534.33	357333.87	203	3	25	13.0	7.5	648744	569756	78988	64	
41	795518.8	357319.98	242	2.8	25	42.2	2.3	550916	471928	78988	60	
42	795537.17	357275.57	528	5.3	47.2	47.9	2.5	1429540	1350552	78988	59.8	
43	795555.61	357226.31	32.1	0.9	7	3.4	0.2	172670	93682	78988	60.2	
44	795573.57	357183.09	13.1	0.7	4.1	19.4	1.5	84313	5325	78988	51.7	

Appendix 2: Statistical tests on PM2A Data:

F-Test Two-Sample for Variances

	CS-137	CS-137 GRAB
Mean	170.1204545	98.50681818
Variance	62052.81841	41527.10484
Observations	44	44
df	43	43
F	1.494272684	
P(F<=f) one-tail	0.095964248	
F Critical one-tail	1.660744431	

t-Test: Two-Sample Assuming Equal Variances

	CS-137	CS-137 GRAB
Mean	170.1204545	98.50681818
Variance	62052.81841	41527.10484
Observations	44	44
Pooled Variance	51789.96162	
Hypothesized Mean Difference	0	
df	86	
t Stat	1.475992914	
P(T<=t) one-tail	0.071798989	
t Critical one-tail	1.662765499	
P(T<=t) two-tail	0.143597978	
t Critical two-tail	1.987932592	

F-Test Two-Sample for Variances

	<i>SAM PCI</i>	<i>CS-137 GRAB</i>
Mean	103.3330823	113.2583333
Variance	45641.40256	49562.4145
Observations	36	36
df	35	35
F	0.920887391	
P(F<=f) one-tail	0.404380255	
F Critical one-tail	0.56910654	

t-Test: Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	103.3330823	113.2583333
Variance	45641.40256	49562.4145
Observations	36	36
Hypothesized Mean Difference	0	
df	70	
t Stat	-0.193003671	
P(T<=t) one-tail	0.423757495	
t Critical one-tail	1.666915068	
P(T<=t) two-tail	0.84751499	
t Critical two-tail	1.994435479	



Christophe P Oertel  
07/06/2000 03:57 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Neal A Yancey/YANCNA/CC01/INEEL/US@INEL

Subject: Reissue of PM2A report

Per our conversation with Craig, I have reworked the color schemes in the earlier letter on the PM2A. I have left relevant notes and messages with Stacey regarding next weeks activites as follows:

1. perform DART work on the soil bag area (bags are removed). should be able to reach points using 50 ft. cable without taking truck inside the PM2A.
2. Using Figures 1 and 4 in the letter, take core samples to at least 12 inches at only those locations >100pCi/g. Stacey--you and I will work on the depth profile curves when I get back from Denver.
3. Return the cores to INTEC and weigh. Have Mike gamma count and report in pCi/g as usual

we are short of sample containers. Pat has worked this and should have some out here by tues a.m. from Precision Plastics.

Stacey you can use Kuhns' org no. 3160 and charge no. 3xncc6126 to reserve yourself a vehicle for Tues-Wed-Thurs if needed. Just call Linda at CFA and it should be ok.

Stacey--Mike has the Denver phone numbers where I can be reached if needed. thanks---cpo



wag1\_pm2a.doc

## INTEROFFICE MEMORANDUM

**Date:** June 27, 2000

**To:** J. L. Hill MS 3932 6-3370  
W.P. Boyd MS 3932 3-2936

**From:** C. P. Oertel MS 5202 6-3541  
S. J. Hill MS 5202 6-3067  
M. L. Evans MS 5202 6-9791

**Subject:** Results of WAG 1- PM2A Radiation Profiling Measurements  
CPO-08-00

### Introduction:

We have completed first stage gross gamma, insitu gamma spectrometry, and soil grab sampling efforts at the PM2A area at WAG 1. The gross gamma data was acquired with the handheld SAM-935 sodium iodide detector. The insitu measurements were performed at PM2A using the DART/M1 gamma spectrometry system. Grab samples were collected at each measurement point using a spoon sampler. These measurements were performed both to scope the potential Cs-137 levels at this site and to ascertain the lateral extent of this contamination. In addition, surface grab sampling was performed at all measurement locations. Measurement points were located about 50 feet apart and covered the entire fenced area. Figure 1 shows the measurement and sampling locations at the PM2A area.

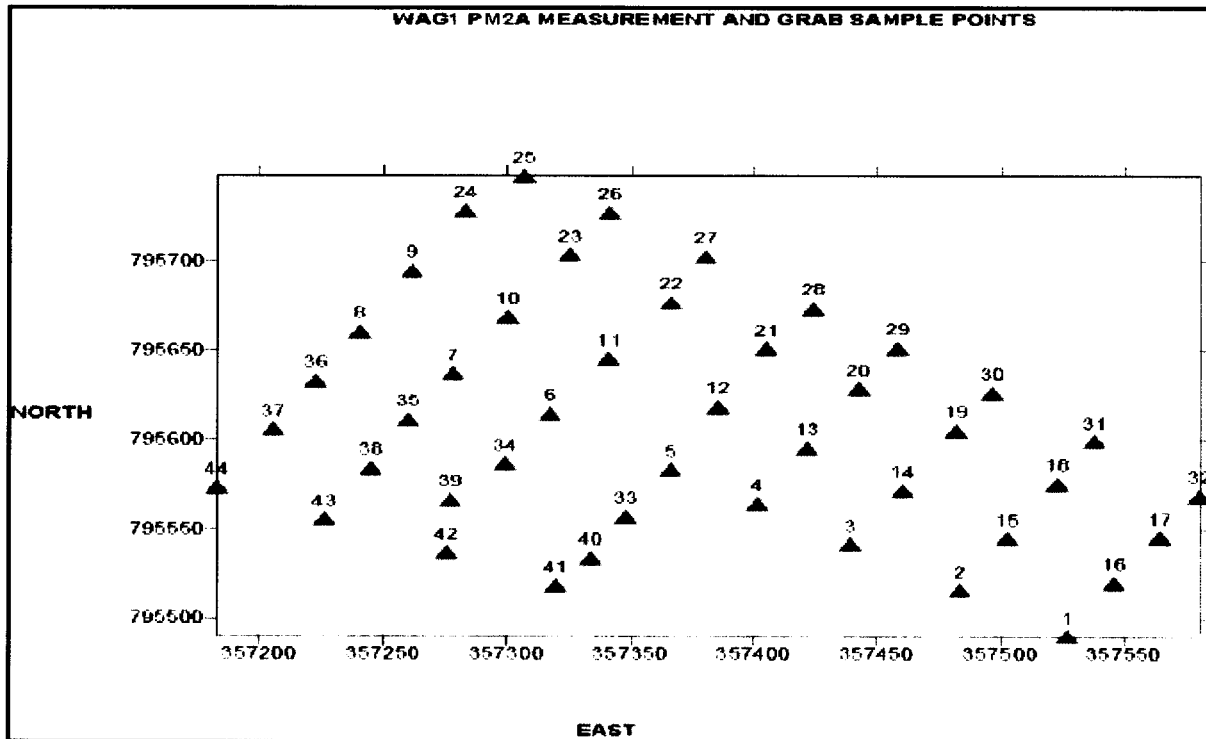
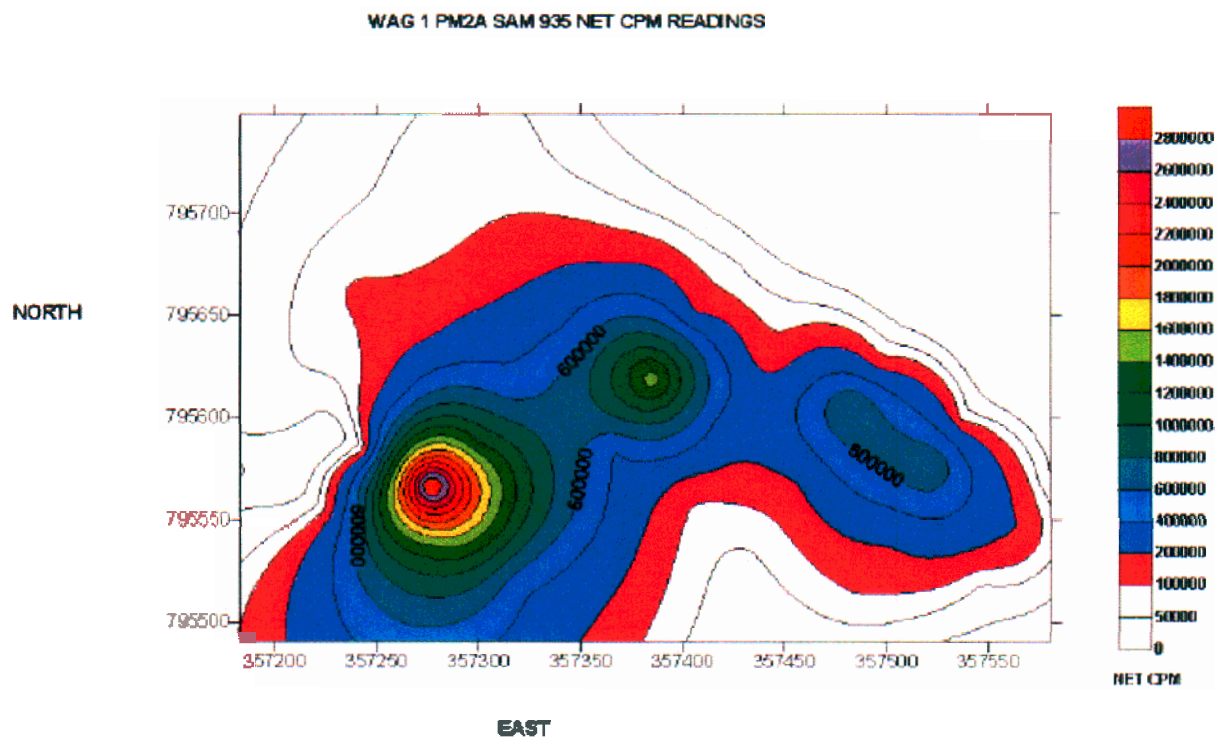


Figure 1: Sampling and one meter measurement locations at PM2A site

### Gross Gamma Counting Results:

The portable SAM-935 sodium iodide detector was used to prescan and locate areas of high count rate. These measurements were performed by holding the detector at one foot above ground for 60 seconds at each measurement point. In addition, several other points were measured between the points shown in figure one in order to get better measurement resolution. Appendix 1 and figure 2 below show the results of the SAM 935 measurements.

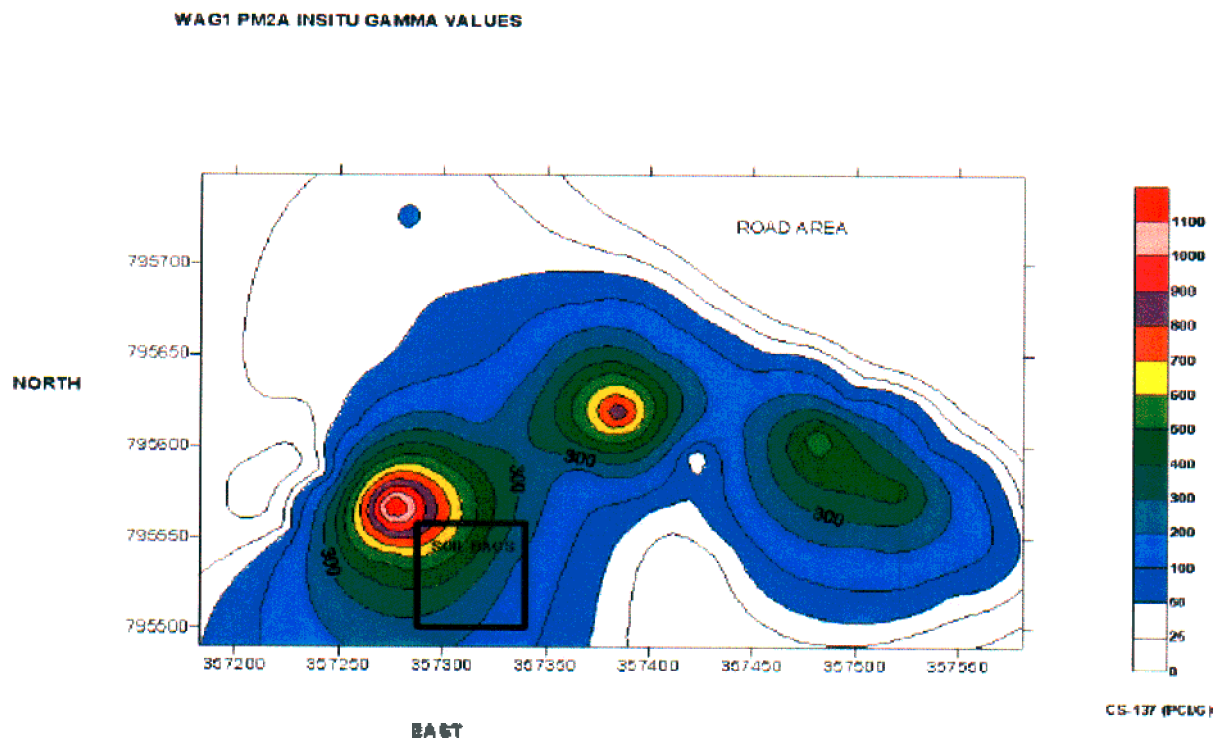


**Figure 2: SAM 935 Gross gamma count results at PM2A**

### InSitu Gamma Spectrometry Results:

The system employs a standard coaxial germanium detector positioned at one meter above ground and connected to an EG&G Ortec Dart multichannel analyzer. The multichannel analyzer is connected to a Panasonic CF25 field computer running the U. S. Department of energy (DOE) Environmental Measurements Laboratory (EML) M1 software. This software uses internal efficiency calibration factors, attenuation corrections, and angular flux corrections to calculate and report the individual radionuclide specific activities and associated uncertainties. The system is calibrated on a daily basis prior to field measurements.

Appendix 1 shows the results of one-meter measurements at the PM2A area. The Cs-137 values are reported in pCi/g and the uncertainties are at the 1-sigma level. The data is mapped on as shown below in figure 3:



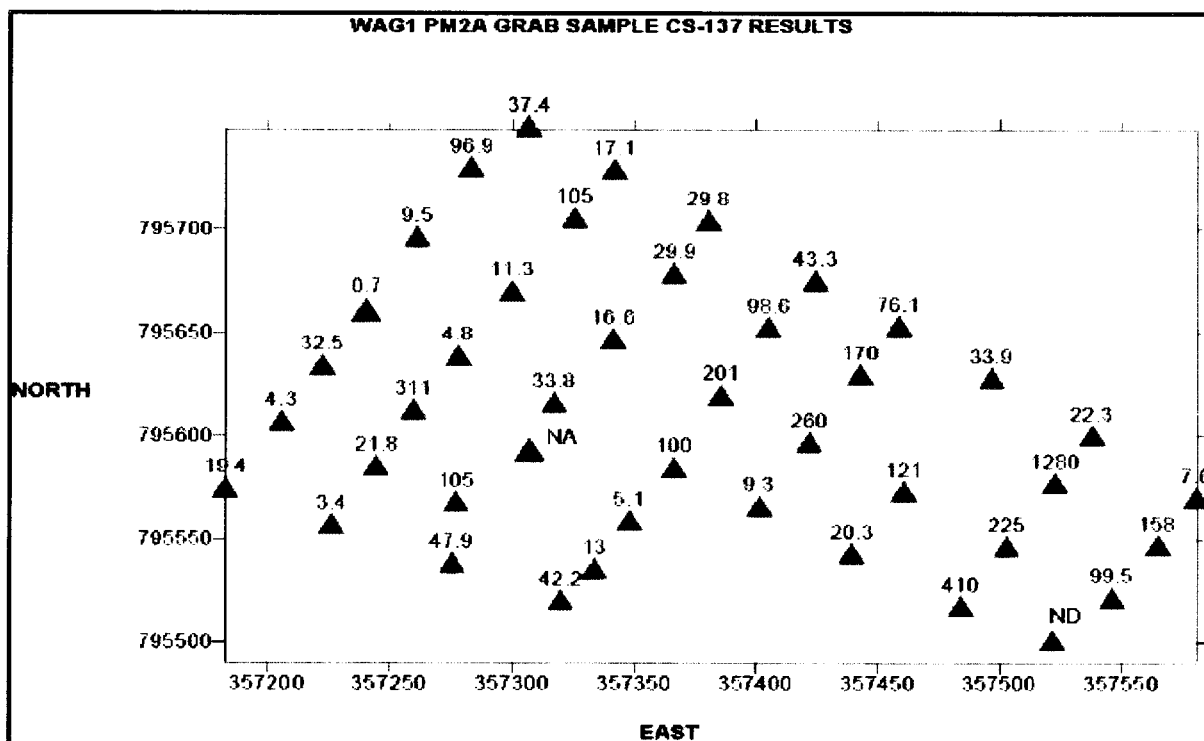
**Figure 3:Cs-137 profile at WAG 1-PM2A area**

Notice that the areas of elevated Cs-137 occur north of the soil bags and near the areas known as piles 1 and 2. The effect of "shine" or background radiation on the measurements near the soil bags is obvious. The points measured near the soil bags were located in very close proximity to the bags. Values range from 13 to 1256 pCi/g in this area.



#### Grab Sample Results:

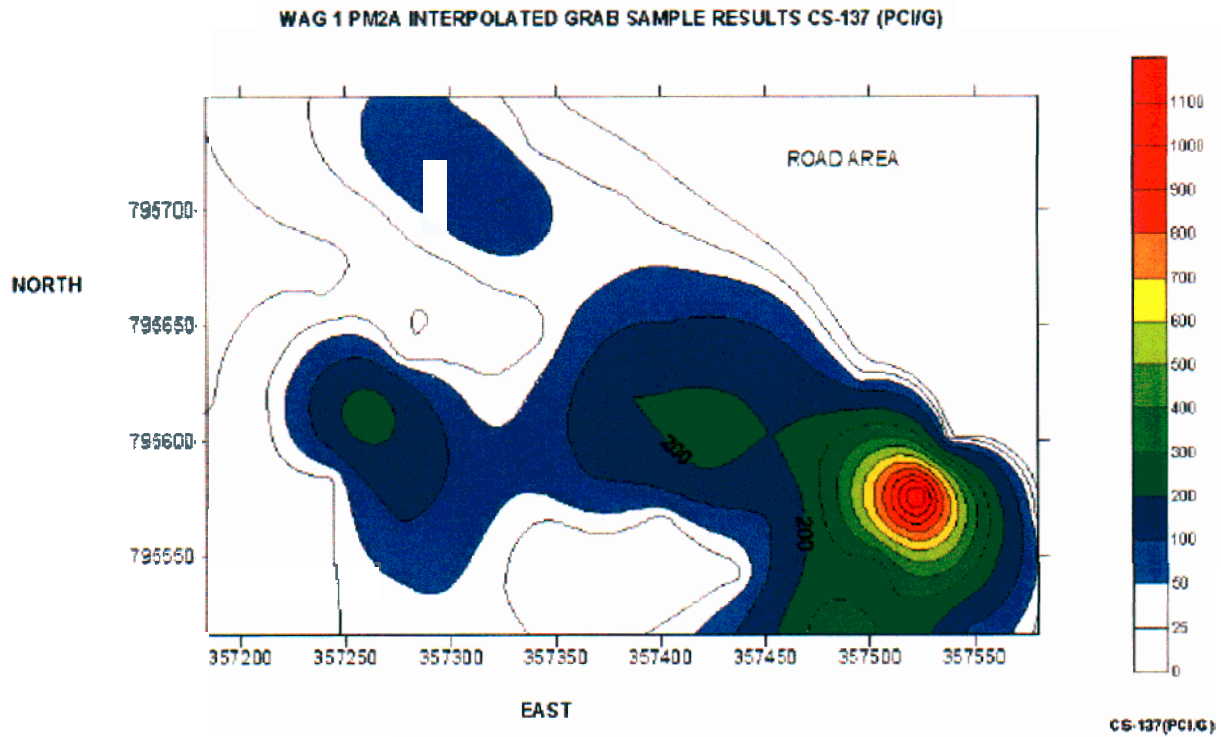
In order to better establish the effect of shine at the PM2A site, samples were taken and analyzed. The samples were collected and placed in plastic sample containers and then analyzed for Cs-137 concentrations using a fully calibrated, NIST-traceable gamma spectrometry system at INTEC. The Cs-137 data are shown in Appendix 1 and are plotted below in figure4:



**Figure 4: Grab sample results from PM2A area**

The figure 4 data shows much lower values of the Cs-137 than the DART measurement results. The grab sample results range from below detection limit to a high value of 1280 pCi/g of Cs-137. This high value is at point number 18, which is near pile1. This location appears in all the figures as a location where hot spots are still present following soil bagging. Note in appendix 1 that the grab sample result for location number 20 is missing. This sample was above the rad limit for shipping and was discarded. In addition, figure 4 points out that the soil bag area has Cs-137 values ranging up to 311 pCi/g. This is much lower than the DART insitu values which were biased by the shine from the bagged soil. Measurement location 34, however, is also missing from the data because this sample was too hot to transport and was discarded. Also, the SAM 935 system was calibrated using the same NIST standard as was used to calibrate the INTEC lab systems. Thirty six of the collected grab samples were counted on the calibrated SAM and a comparison is shown in the summary section of this report.

If we assume that the windblown contamination is spread homogeneously at this site, we can map the grab sample data and interpolate between measurement locations. This result is shown in figure 5.



**Figure 5: PM2A Interpolated grab sample Cs-137 results**

Figure 5 shows that the area near point 18 moving northwest is most subject to hot spots or localized contamination areas. Grab samples taken near the soil bags showed much lower values of Cs-137.

**Summary:**

Figure 6 below is a summary map of all measurements taken at the PM2A site. The following conclusions are drawn from this data:

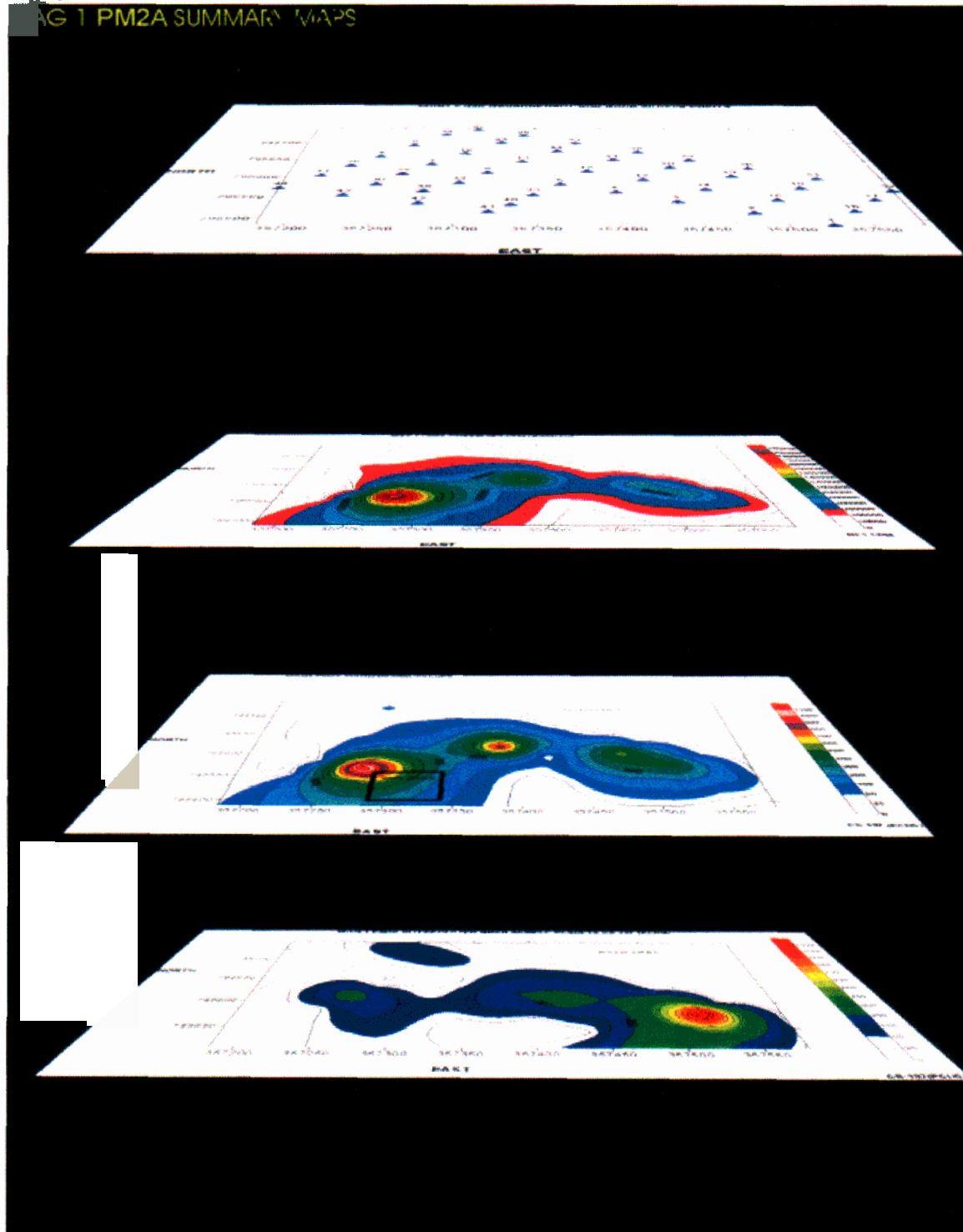
1. Most areas of the PM2A site remain above the 23 pCi/g Cs-137 level as determined by both grab samples and insitu gamma spectrometry.
2. The area near points 18-20 is still affected by windblown contamination and hotspots.
3. The soil bags contribute significant shine to uncollimated DART system measurements.
4. The SAM 935 gross counting system appears to be an excellent first pass instrument for scoping a large site such as the PM2A.
5. Most areas of the PM2A except for the soil bag storage area appear to have lower shine contribution following the cleanup of pile 2.
6. Appendix 2 shows results of several statistical comparisons. The results are shown here:

<b>Test</b>	<b>Result</b>	<b>Conclusion</b>	<b>p-value</b>
DART variance Vs Grab sample Variance	f=1.5 f(crit)=1.7	no signif. Difference	.09
DART mean Vs Grab Sample Mean	t=1.5 t(crit)=1.7	no signif. difference	.07
SAM 935 variance Vs grab sample Variance	f=.92 f(crit)=.57	signif. Difference possible..	.40
SAM 935 mean Vs grab sample Mean	t=.19 t(crit)=2.0	no significant difference.	.42

This data shows that there are no statistically significant measurement biases between measurement types (i.e. Grab samples, DART, SAM 935 calibrated for quantitative work)). However, we caution that some biases could be masked due to the very large variances associated with each data set shown in Appendix 1.

Fig. 6

FIG 1 PM2A SUMMARY MAPS



Appendix 1: Data from PM2A area. Uncertainties are at the one sigma level.

ID	northing	easting	CS-137	1-SIG	% DEAD	CS-137 GRAB	1-SIG	SAM 935 GCPM	SAM 935 NCPM	BKD	WT	SAM PCI
1	795490.43	357526.73	12.1	0.6	4	ND	ND	76265	0	76265	59.9	
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F	0.920887391	
P(F<=f) one-tail	0.404380255	
F Critical one-tail	0.56910654	

t-Test: Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	103.3330823	113.2583333
Variance	45641.40256	49562.4145
Observations	36	36
Hypothesized Mean Difference	0	
df	70	
t Stat	-0.193003671	
P(T<=t) one-tail	0.423757495	
t Critical one-tail	1.666915068	
P(T<=t) two-tail	0.84751499	
t Critical two-tail	1.994435479	



Christophe P Oertel  
08/03/2000 10:50 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL  
cc: Michael L Evans/EVANML/CC01/INEEL/US@INEL

Subject: TSF-06 windrow data

Attached please find the latest field data for recently scraped and rowed data.  
If there are questions, please do not hesitate to call.

chris oertel



wag1\_tsf06 windrows.doc



## INTEROFFICE MEMORANDUM

**Date:** August 3, 2000

**To:** J. L. Hill MS 3932 6-3370  
W.P. Boyd MS 3932 3-2936

**From:** C. P. Oertel MS 5202 6-3541  
S. J. Hill MS 5202 6-3067  
M. L. Evans MS 5202 6-9791

**Subject:** Results of WAG 1- TSF-06 Windrow Soil Measurements  
CPO-09-00

**Introduction:**

We have completed insitu gamma spectrometry, and soil grab sampling efforts on three windrow piles at the TSF-06. The insitu measurements were performed using the DART/M1 gamma spectrometry system. Grab samples were collected at each measurement point on the windrows at surface and 6 inches below surface using a spoon sampler. Measurement points were located about 30 feet apart. These samples were counted by conventional gamma spectrometry at the INTEC laboratory.

**InSitu Gamma Spectrometry and Grab Sample Results:**

The insitu system employs a standard coaxial germanium detector positioned at one meter above ground and connected to an EG&G Ortec Dart multichannel analyzer. The multichannel analyzer is connected to a Panasonic CF25 field computer running the U. S. Department of Energy (DOE) Environmental Measurements Laboratory (EML) M1 software. This software uses internal efficiency calibration factors, attenuation corrections, and angular flux corrections to calculate and report the individual radionuclide specific activities and associated uncertainties. The system is calibrated on a daily basis prior to field measurements.

Appendix 1 shows the results of one-meter measurements on the first two windrows. The Cs-137 values are reported in pCi/g and the uncertainties are at the 1-sigma level. Thermal conditions on 7.31.2000 through 8.2.2000 prohibited some measurements from being completed due to overheated electronics.

The northern windrow showed Cs-137 concentrations consistently above 23.5 pCi/g at both 0 and 6 inches. This is conclusive evidence of homogeneous contamination throughout the length and depth of this pile. The center windrow, measured 8.1.2000, showed a small section of dirt below 23.5 pCi/g while the remainder was above. The third windrow was grab sampled only and shows 1 sample above the 23.5 pCi/g level.

The graphs shown with the spreadsheet are a rough indicator of the homogeneity of these windrows. Note the strong correlation of the 0 and 6 inch data values for the first windrow and the lack of such a correlation on the second windrow. The third windrow shows some correlation, but not as strong as the north windrow.

If there are any questions, please call at 6-3541.

Appendix 1: Data from TSF 06 windrows. Uncertainties are at the one sigma level.

**WAG 1 TSG06 WINDROW DATA**

**NORTH WINDROW DATA 7.31.2000**

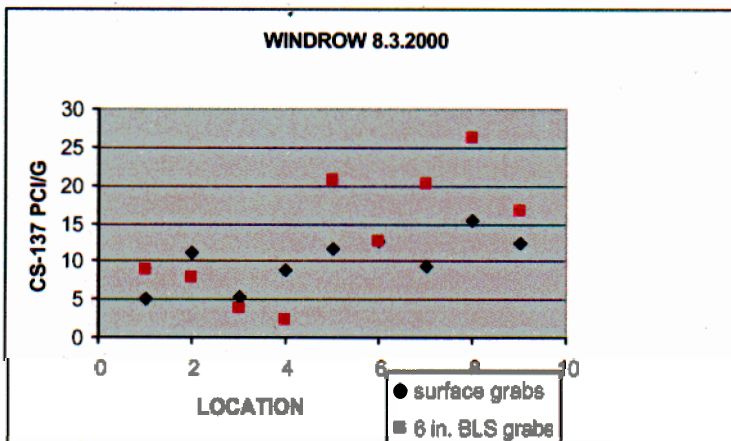
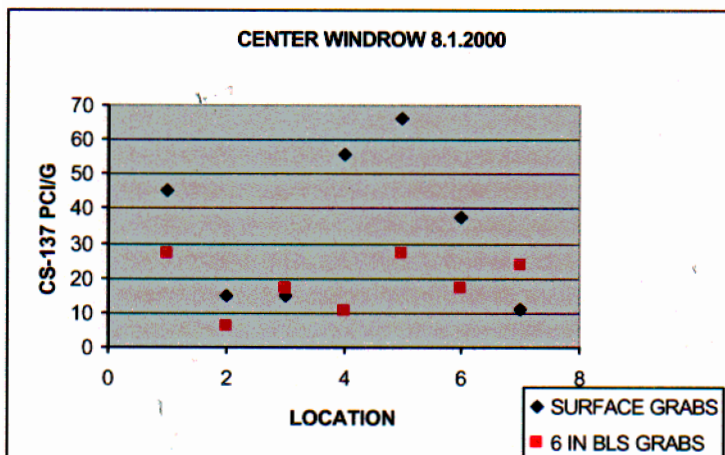
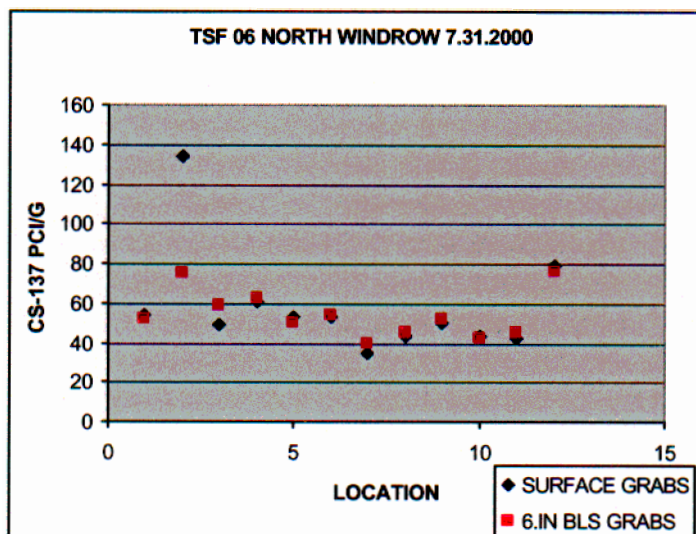
POINT NO.	DART CS-137	LOCATION	0 IN. BLS GRAB	1-SIGMA	6 IN BLS GRAB	1-SIGMA
WR-1	72.3	1	53.6	2.9	52.4	2.9
WR-2	36.3	2	134	7.8	75.6	4.3
WR-3	23.7	3	49.5	2.8	58.7	3.5
WR-4	NA	4	61.1	3.1	63	3
WR-5	NA	5	52.9	3.1	50.6	3.4
WR-6	NA	6	52.7	3.5	53.5	3.3
WR-7	NA	7	34.5	1.9	39.8	3
WR-8	NA	8	43.4	3.3	45	3.3
WR-9	NA	9	50.5	3.3	51.8	4.3
WR-10	NA	10	43.1	3.9	42.6	4.2
WR-11	NA	11	42.3	5.6	45.5	6
WR-12	NA	12	79.3	2.4	75.9	4.3

**CENTER WINDROW DATA 8.1.2000**

POINT NO.	DART CS-137		0 IN. BLS GRAB	1-SIGMA	6 IN BLS GRAB	1-SIGMA
8-1#1	28.5	1	45.4	4.4	27.1	4.8
8-1#2	15	2	15	6.8	5.9	9.3
8-1#3	13.4	3	14.7	3.5	17	2.7
8-1#4	12.4	4	55.4	4.2	10.6	8.1
8-1#5	15.4	5	66.1	3	27.1	3
8-1#6	8.7	6	37.6	3.6	16.9	2.8
8-1#7	9	7	11	3.4	23.7	3.1

**WINDROW DATA 8.2.2000**

POINT NO.	DART CS-137		0 IN. BLS GRAB	1-SIGMA	6 IN BLS GRAB	1-SIGMA
1	NA	1	5.1	0.3	8.7	0.9
2	NA	2	11	0.9	7.8	0.4
3	NA	3	5.3	0.2	3.7	0.4
4	NA	4	8.7	0.5	2.2	0.6
5	NA	5	11.6	1.2	20.6	1.1
6	NA	6	12.6	1.9	12.5	1.9
7	NA	7	9.3	0.2	20.1	0.2
8	NA	8	15.3	0.2	26.1	0.2
9	NA	9	12.3	0.2	16.6	0.1





Christophe P Oertel  
08/29/2000 03:51 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL  
cc:

Subject: TSF-06 Grid Report

Attached is the TSF-06 Grid report/ call Bart Morales or myself with questions. Also, final analysis of PM2A data is underway.



wag1\_tsf06 GRID.doc

## INTEROFFICE MEMORANDUM

**Date:** August 29, 2000

**To:** J. L. Hill MS 3932 6-3370  
W.P. Boyd MS 3932 3-2936  
M. D. Elliot MS 3950 6-0872

**From:** B. B. Morales MS 4107 6-0205  
C. P. Oertel MS 5202 6-3541

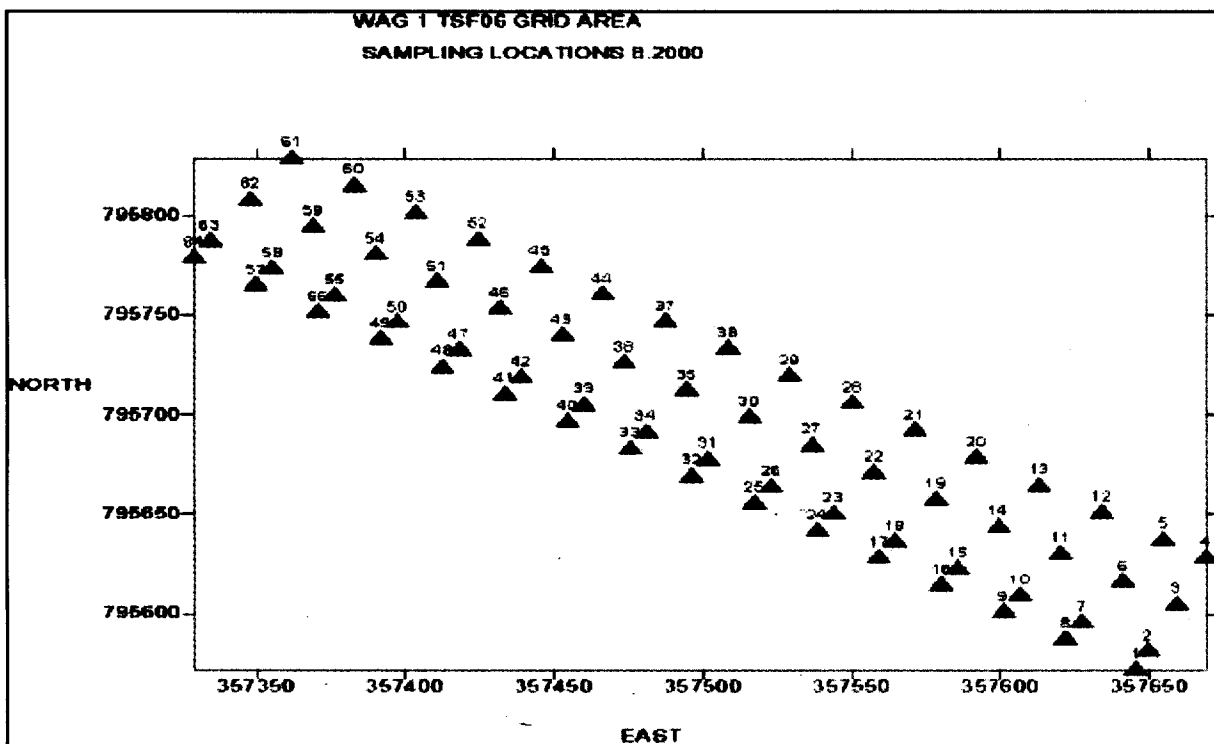
**Subject:** Results of WAG 1-TSF 06 Grid Measurements  
BBM-01-00

**Introduction:**

We have completed first stage insitu gamma spectrometry and soil sampling efforts at the TSF -06 area at WAG 1. The insitu measurements were performed at TSF 06 using the DART/M1 gamma spectrometry system. These measurements were performed both to scope the potential Cs-137 levels at these sites and to ascertain the lateral and vertical extent of this contamination. In addition, segmented core sampling was performed at several locations in order to develop the depth profile for the Cs-137 at this site.

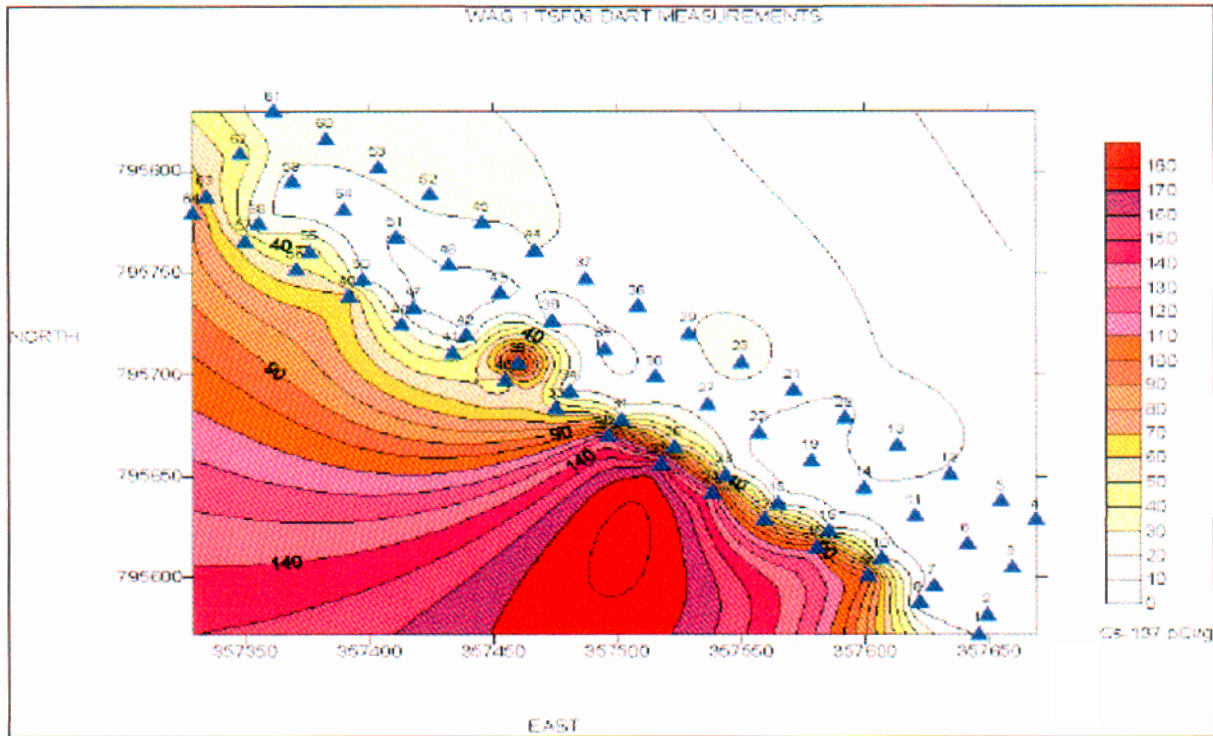
**InSitu Gamma Spectrometry Results:**

Appendix 1 shows the results of all measurements at the TSF 06 area. The Cs-137 values are reported in pCi/g and the uncertainties are at the 2-sigma level. The grid locations are shown below in figure 1:



**Figure 1: Sampling Points at WAG 1-TSF 06 area**

Figure 2 shows the results of the DART measurements on the current overburden surface.

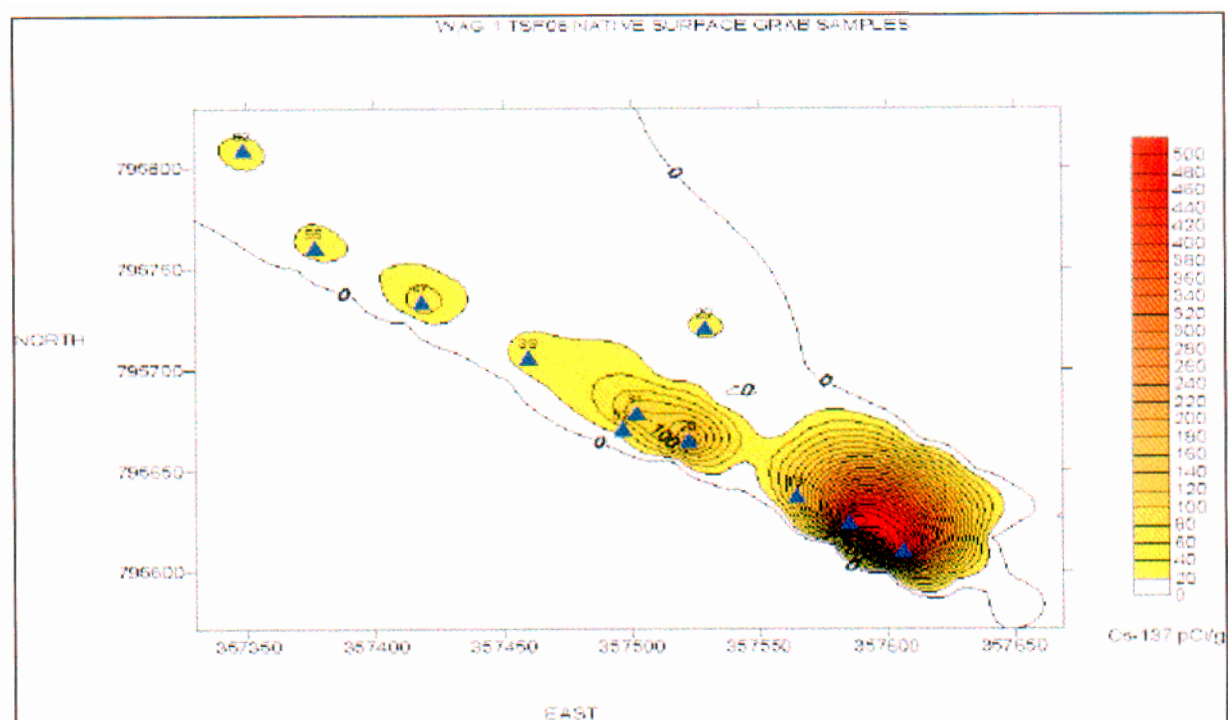


**Figure 2: DART Measurements at TSF06 Grid Overburden**

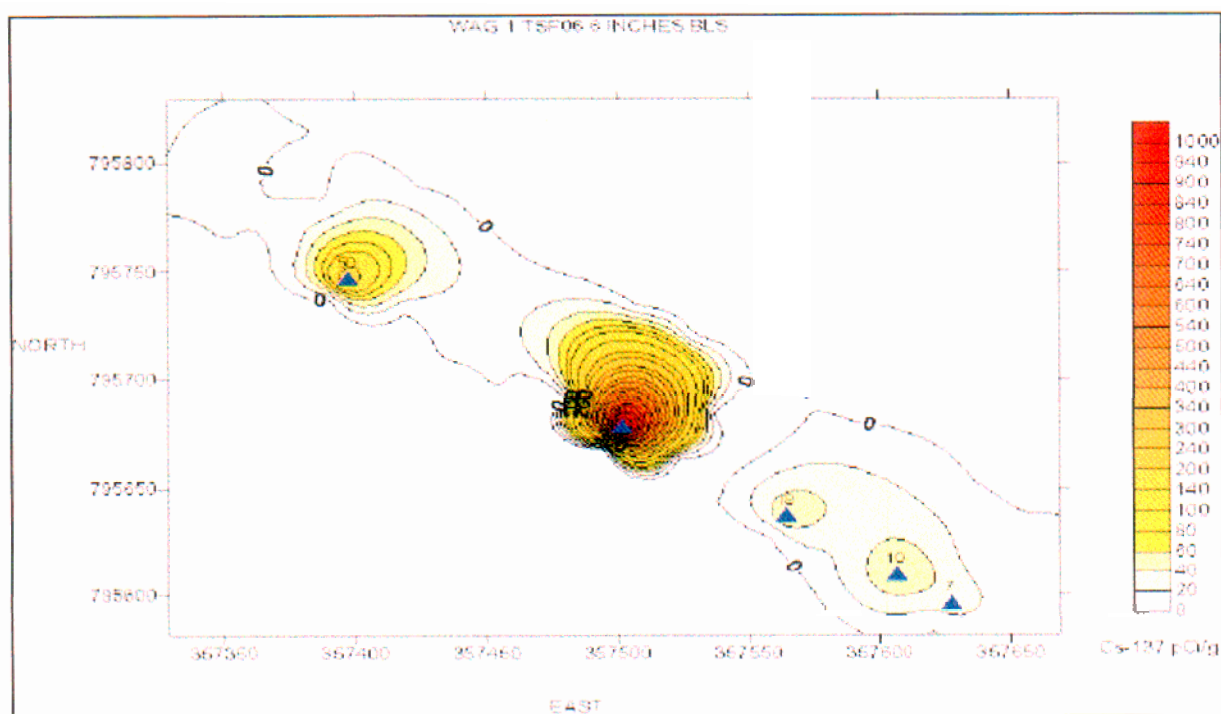
Note that Figure 2 shows the highest DART measurements occurred along the East Side of the gridded area near contaminated asphalt. In addition, due to the large field of view of the detector, contribution to the DART activity measurements from the adjacent PM2A area was highly likely.

#### **Results from Soil Sampling at TSF 06 Area:**

Sampling at the TSF 06 Grid Area occurred from the surface of the native soil to 18 inches below the surface at 6-inch increments. Referring to Appendix 1, the depths (6,12 and 18 inches) are depths below the native surface. These samples were acquired using an auger. The samples were collected and placed in plastic sample containers and then analyzed for Cs-137 concentrations using a fully calibrated, NIST-traceable gamma spectrometry system at INTEC. The Cs-137 data are shown in appendix 1 and are plotted below in figures 3-6:

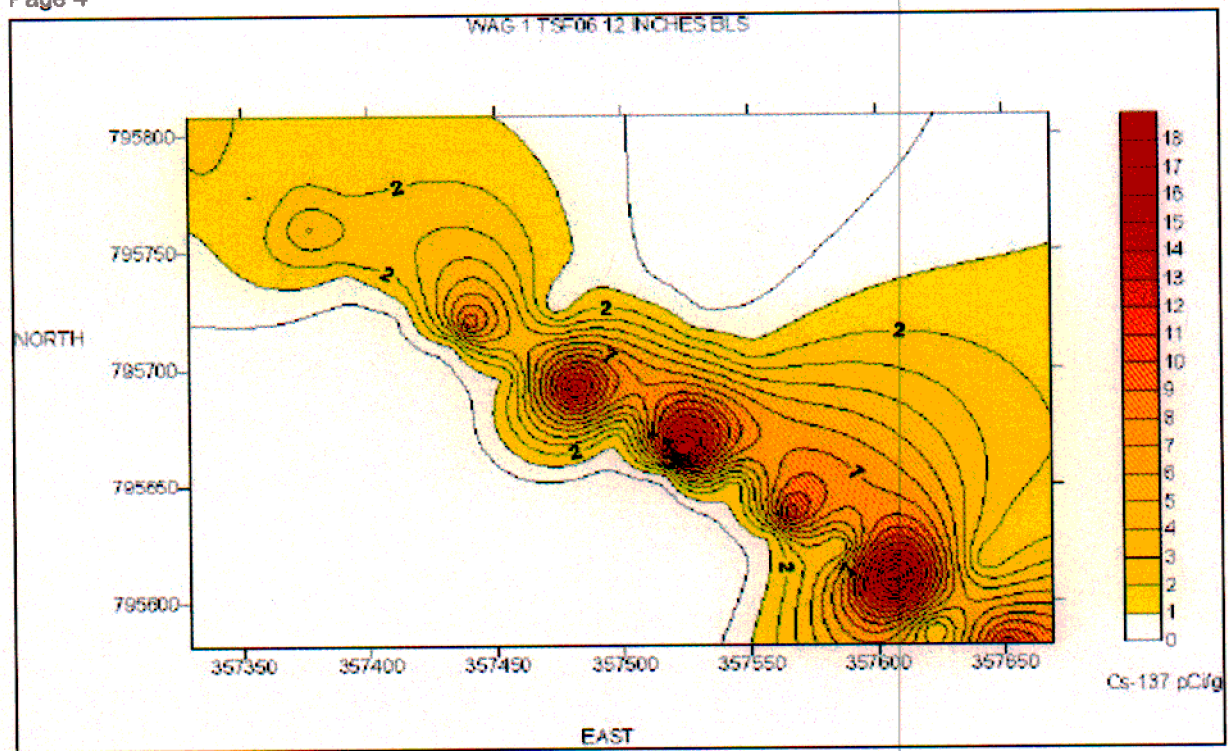


**Figure 3: WAG 1 TSF 06 (0 inches Below Native Surface)**

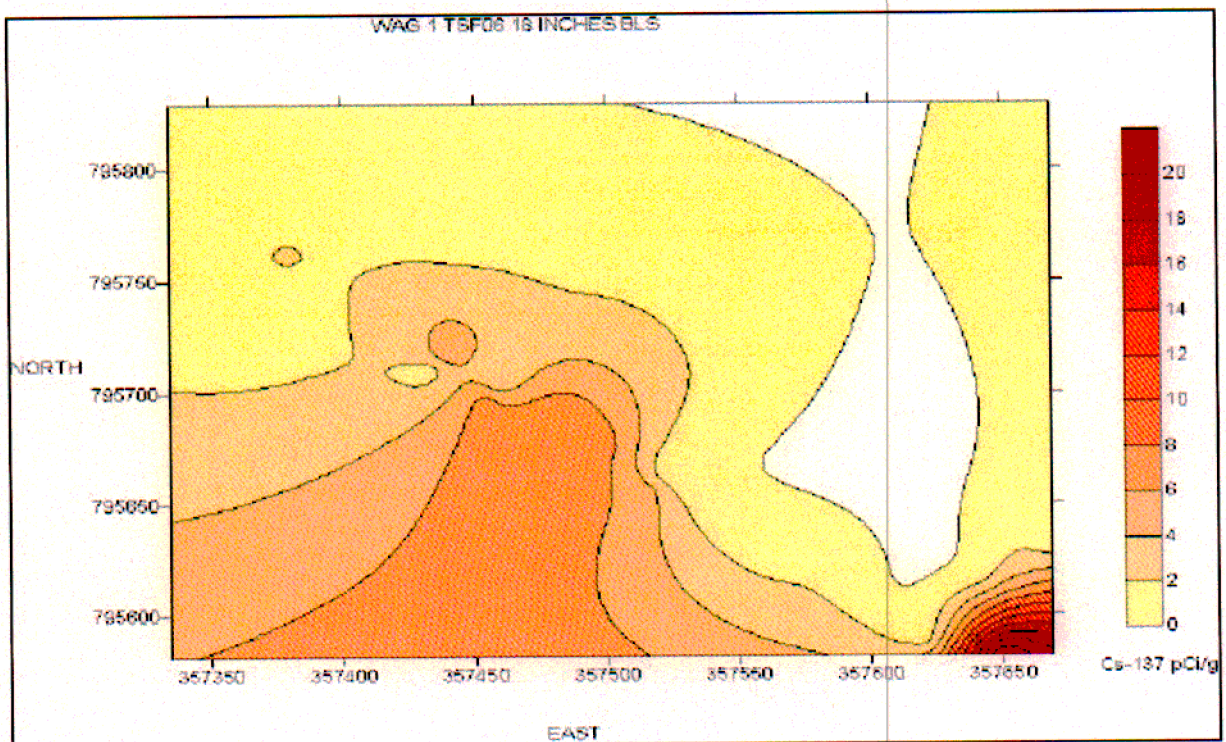


**Figure 4: WAG 1 TSF 06 (6 inches Below Native Surface)**





**Figure 5: WAG 1 TSF 06 (12 inches Below Native Surface)**



**Figure 6: WAG 1 TSF 06 (18 inches Below Native Surface)**



J. L. Hill  
W.P.Boyd  
M. D. Elliot  
August 29, 2000  
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Figures 3-6 show that the contamination at or above 23.5 pCi/g of Cs-137 exists only at the surface and six inches below native surface level. At 12 and 18 inches below native surface level no Cs-137 exceed 23.5 pCi/g. The two outside rows along the roadway show consistent contamination patterns.

#### Data Analysis:

Table 1 below shows the statistical values for the DART and 0-18 inch BLS measurements.

Depth Below Native Surface	<u>0"</u>	<u>6"</u>	<u>12"</u>	<u>18"</u>	<u>DART</u>
Number of values	55	39	34	31	63
Minimum	0.100	0.100	0.100	0.100	0.400
25% Percentile	1.85	0.650	1.00	1.10	9.30
Median	4.20	1.30	1.45	1.40	19.7
75% Percentile	15.5	5.50	4.00	2.75	46.4
Maximum	538	180	18.9	22.5	161
Mean	34.9	11.1	3.70	2.80	32.9
Std. Deviation	104	31.5	5.04	4.16	36.1
Std. Error	14.0	5.04	0.864	0.747	4.55
Lower 95% CI	6.84	0.917	1.95	1.28	23.8
Upper 95% CI	62.9	21.3	5.46	4.33	42.0

**Table 1.**

Note: at six inches that the value of 1139 pCi/g at TSF06-31 has been removed from statistical calculations as an outlier. This only means that this value is a statistical outlier not a bad sample or measurement. This value should probably be considered as a "hot spot".

In order to determine whether the mean Cs-137 concentration limits at each depth exceed the 23.5 pCi/g limit a simple T-test was performed on each data set. Table 2 below shows the results of comparing the depth means to the 23.5 pCi/g limit.

Depth Below Native Surface	<u>0"</u>	<u>6"</u>	<u>12"</u>	<u>18"</u>	<u>DART</u>
Theoretical mean	23.5	23.5	23.5	23.5	23.5
Actual mean	34.9	11.1	3.70	2.80	32.9
Discrepancy	-11.4	12.4	19.8	20.7	-9.36
95% CI of discrepancy	-16.7 to 39.5	-22.6 to -2.19	-21.6 to -18.0	-22.2 to -19.2	0.262 to 18.5
t, df	t=0.814 df=54	t=2.46 df=38	t=22.9 df=33	t=27.7 df=30	t=2.06 df=62
P value (two tailed)	0.4194	0.0186	P<0.0001	P<0.0001	0.0439
Significant (alpha=0.05)?	No	Yes	Yes	Yes	Yes

**Table 2.**

Table 2 shows that the depth segment from 0-6" has a mean value much higher (34.9) than the test value of 23.5 pCi/g. This mean value is not statistically different from the 23.5 pCi/g limit and the high P-value supports the conclusions that the 0" data mean is not different from the 23.5pCi/g limit. At the other three depths the means are all lower than and statistically different from the 23.5 pCi/g limit.

J. L. Hill  
W.P.Boyd  
M. D. Elliot  
August 29, 2000  
BBM-01-00  
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Table 3 below shows an analysis of variance comparison of the native surface and below native surface data sets.

Dunn's Multiple Comparison Test	<u>Difference in rank sum</u>	<u>P value</u>	<u>Summary</u>
0 IN BLS vs 6 IN BLS	40.62	P < 0.05	*
0 IN BLS vs 12 IN BLS	42.42	P < 0.05	*
0 IN BLS vs 18 IN BLS	47.49	P < 0.05	*
6 IN BLS vs 12 IN BLS	1.798	P > 0.05	ns
6 IN BLS vs 18 IN BLS	6.872	P > 0.05	ns
12 IN BLS vs 18 IN BLS	5.074	P > 0.05	ns

**Table 3.**                      \* - significant                      ns - not significant

Table 3 results show that the 0-6" data is different from the 6-12" and the 12-18" data sets while the 6" data is not different than the 12" or 18" data and the 12" data is no different from the 18" data.

**Summary:**

Core sample and DART measurement data have shown that the TSF 06 Grid site contain Cs-137 levels above the 23.5 pCi/g limit down to at most 6" below native surface. The pattern of remaining contamination appears to be restricted to a small area. If there are any question please do not hesitate to call Chris Oertel @ 6-3541 or Bart Morales @ 6-0205.

J. L. Hill  
W.P.Boyd  
M. D. Elliot  
August 29, 2000  
BBM-01-00  
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## APPENDIX 1

### TSF 06 ROADBED GRID POINTS

ID	0 IN. BLS	6 IN BLS	12 IN BLS	18 IN BLS	NORTH	EAST	DART CS137	2SIGMA
TSF06-1	0.2	ND	ND	ND	795571.78	357645.35	9.3	1.5
TSF06-2	14.9	11.4	10.9	22.5	795581.18	357649.26	5.2	1.1
TSF06-3	ND	ND	ND	ND	795604.65	357659.04	3.4	0.7
TSF06-4	1.5	2.9	1.9	1.5	795628.13	357668.82		
TSF06-5	1.9	ND	1.8	2	795637.35	357654.73	9.2	0.6
TSF06-6	1.1	1.2	1.1	1	795616.44	357641.04	<1	NA
TSF06-7	12.2	35.6	ND	2.9	795595.52	357627.35	6.6	0.7
TSF06-8	1.8	1.3	1.4	1.3	795587.16	357621.87	2.5	1.1
TSF06-9	11.7	ND	ND	1.4	795600.85	357600.95	99	3.4
TSF06-10	538	63.1	18.9	0.2	795609.22	357606.43	21.5	0.7
TSF06-11	ND	ND	ND	ND	795630.13	357620.12	4.6	2.9
TSF06-12	0.8	1.2	ND	ND	795651.05	357633.82	8.9	0.5
TSF06-13	2	ND	ND	ND	795664.74	357612.9	18.7	1.5
TSF06-14	ND	ND	ND	ND	795643.83	357599.21	9.3	1.2
TSF06-15	537	21.6	2.6	1.6	795622.91	357585.51	21.8	0.7
TSF06-16	5.6	ND	ND	ND	795614.55	357580.04	109.8	3.5
TSF06-17	2.4	1.3	1.5	1.2	795628.24	357559.12	78.3	3.3
TSF06-18	105	62.7	11.3	ND	795636.61	357564.6	17.3	1.5
TSF06-19	ND	ND	ND	ND	795657.52	357578.29	9.1	1.1
TSF06-20	13.7	1	ND	ND	795678.44	357591.99	8.9	0.4
TSF06-21	3.9	0.7	ND	ND	795692.13	357571.07	<0.4	NA
TSF06-22	0.2	ND	ND	ND	795671.22	357557.38	9.5	0.7
TSF06-23	5.2	6.3	1.1	ND	795650.3	357543.68	29.3	11.3
TSF06-24	5.9	0.4	ND	1.4	795641.93	357538.21	129.4	3.7
TSF06-25	1.6	ND	1.3	4.6	795655.63	357517.29	160.6	3.9
TSF06-26	191	2	17.6	0.2	795663.99	357522.77	56.7	2.7
TSF06-27	0.3	0.1	ND	ND	795684.91	357536.46	16.3	1.2
TSF06-28	14.4	0.6	1.5	1.2	795705.83	357550.16	26.3	2
TSF06-29	25.4	4.7	0.4		795719.52	357529.24	19.7	1.9
TSF06-30	0.4	ND	ND	ND	795698.61	357515.55	13.2	1.1
TSF06-31	107	1139	3.8	6.5	795677.69	357501.85	32.9	2.1
TSF06-32	22.3	0.4	1	ND	795669.32	357496.37	129.8	3.4
TSF06-33	ND	ND	ND	ND	795683.01	357475.46	47.3	1.5
TSF06-34	ND	1.4	14.2	7.7	795691.38	357480.94	17.7	0.8
TSF06-35	ND	ND	ND	ND	795712.3	357494.63	8.3	1.1
TSF06-36	12.9	1.3	0.4	ND	795733.22	357508.32	17.7	0.7
TSF06-37	2.5	ND	0.9	1.9	795746.91	357487.41	17.4	1
TSF06-38	3	ND	0.1	ND	795725.99	357473.71	5.3	0.3
TSF06-39	42.9	3.3	4.5	2.1	795705.08	357460.02	129	1.2
TSF06-40	2.7	2	1	6.7	795696.71	357454.54	43	2.2
TSF06-41	2.8	1.1	1	1	795710.41	357433.63	34.8	1.9
TSF06-42	0.4	7.5	9.3	5.7	795718.77	357439.10	11.2	0.7
TSF06-43	ND	ND	ND	ND	795739.69	357452.80	7.3	0.6

J. L. Hill  
W.P.Boyd  
M. D. Elliot  
August 29, 2000  
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TSF06-44	7.8	ND	ND	ND	795760.61	357466.49	20.2	1.8
TSF06-45	6.1	0.5	ND	0.9	795774.30	357445.58	19.8	1.5
TSF06-46	3.1	ND	ND	ND	795753.38	357431.88	10.8	0.8
TSF06-47	64.7	1.7	ND	2.6	795732.47	357418.19	10.6	0.8
TSF06-48	0.1	ND	0.2	ND	795724.10	357412.71	28.8	2.3
TSF06-49	1	0.4	0.5	ND	795737.80	357391.80	64.1	2.9
TSF06-50	16	180	2.4	ND	795746.16	357397.27	20.3	1.3
TSF06-51	3.2	ND	ND	ND	795767.08	357410.97	9	0.6
TSF06-52	2.9	0.5	ND	ND	795787.99	357424.66	26	2
TSF06-53	19.7	1.4	1.1	1.3	795801.69	357403.75	24.1	0.8
TSF06-54	2.9	0.8	1.4	1.3	795780.77	357390.05	10.2	0.5
TSF06-55	36.1	7.6	4.2	2.3	795759.86	357376.36	45.9	1.9
TSF06-56	1.6	ND	ND	0.5	795751.49	357370.88	49.7	2.1
TSF06-57	2.7	0.4	ND	0.4	795765.18	357349.96	53.1	2.2
TSF06-58	5.6	ND	0.9	ND	795773.55	357355.44	20.8	1.5
TSF06-59	ND	ND	ND	ND	795794.47	357369.14	15.1	1
TSF06-60	10.5	0.2	ND	ND	795815.38	357382.83	27.4	0.7
TSF06-61	4.2	0.4	ND	0.1	795829.08	357361.92	18.4	0.8
TSF06-62	26.6	1.7	2	1.3	795808.16	357348.22	46.8	2.4
TSF06-63	7.5	1.7	2.3	1.6	795787.25	357334.53	59	2.1
TSF06-64	1.7	1	1.4	ND	795778.88	357329.05	82.7	2.2



Bart B Morales  
09/13/2000 09:10 AM

To: William P Boyd/WPB/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL, Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Michael L Evans/EVANML/CC01/INEEL/US@INEL, Stacey J Hill/HILLSJ/CC01/INEEL/US@INEL, Christophe P Oertel/CPO/CC01/INEEL/US@INEL

Subject: WAG 1, PM2A Soil-Sampling Report

At last the highly anticipated PM2A Report. It's short and sweet but Chris Oertel and I think it says what it needs to. However, if you have any questions, feel free to call Chris @ 6-3541 or Bart @ 6-0205. Thanks for your patience.



PM2A\_Report.doc

## INTEROFFICE MEMORANDUM

**Date:** September 11, 2000

**To:** J. L. Hill MS 3932 6-3370  
W.P. Boyd MS 3932 3-2936  
M. D. Elliot MS 3950 6-0872

**From:** B. B. Morales MS 4107 6-0205  
C. P. Oertel MS 5202 6-3541  
S. J. Hill MS-5202 6-3067  
M. L. Evans MS-5202 6-9791

**Subject:** Results of WAG 1-PM2A Soil Measurements  
BBM-03-00

Introduction:

We have completed soil-sampling measurements of the PM2A area at WAG 1. The segmented core sampling was performed at several locations in order to develop the depth profile for Cs-137 and ascertain vertical extent of this contamination at the site.

### InSitu Gamma Spectrometry Results:

Appendix 1 shows the results of all the soil sample measurements at the PM2A area. The Cs-137 values are reported in pCi/g. The grid locations are shown below in figure 1:

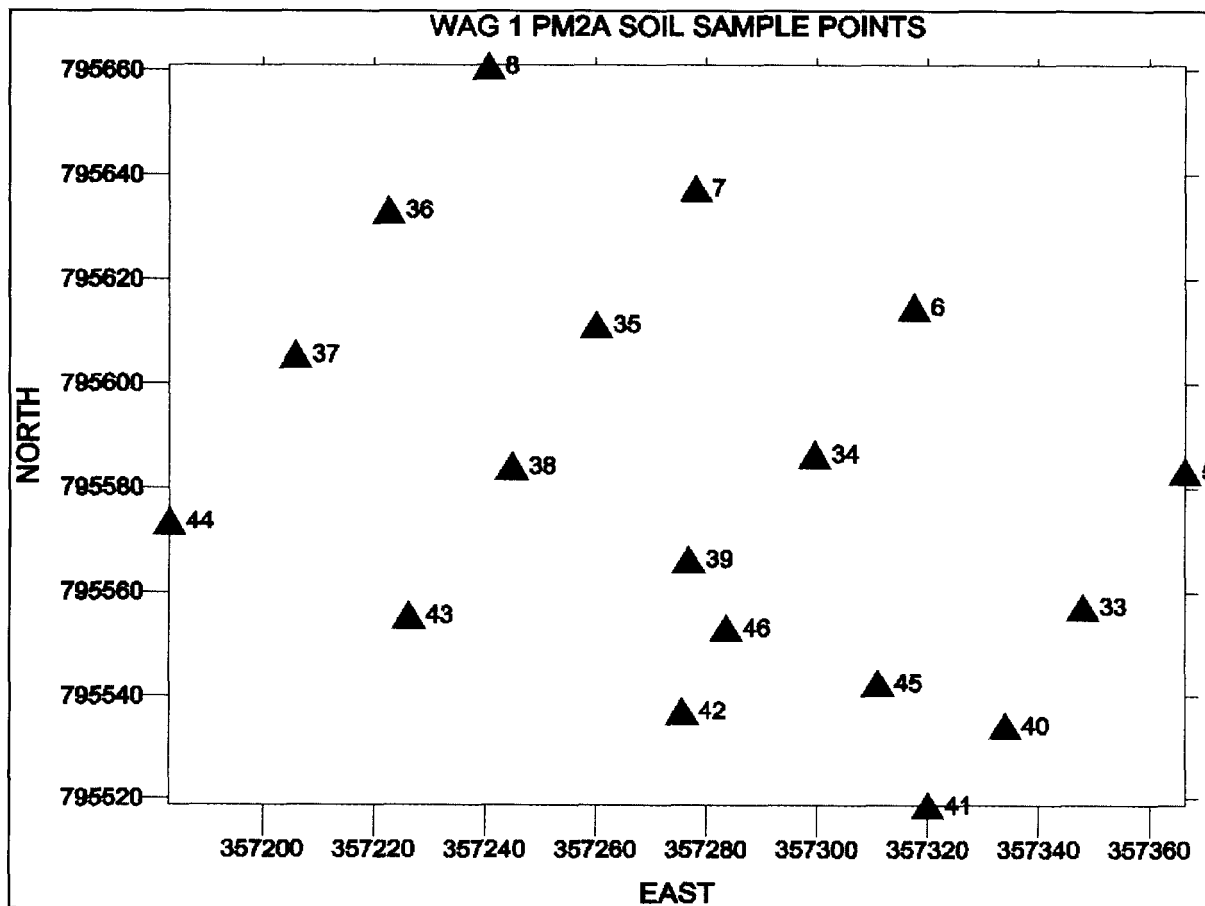


Figure 1: Sampling Points at WAG 1-PM2A area

### Results from Soil Sampling at PM2A Area:

Sampling at the PM2A Grid Area occurred from the surface of the native soil to 18 inches below the surface at 6-inch increments. Referring to Appendix 1, the depths (6,12 and 18 inches) are depths below the native surface. These samples were acquired using an auger. The samples were collected and placed in plastic sample containers and then analyzed for Cs-137 concentrations using a fully calibrated, NIST-traceable gamma spectrometry system at INTEC. The Cs-137 data are shown in Appendix 1 and are plotted below in figures 2-5.

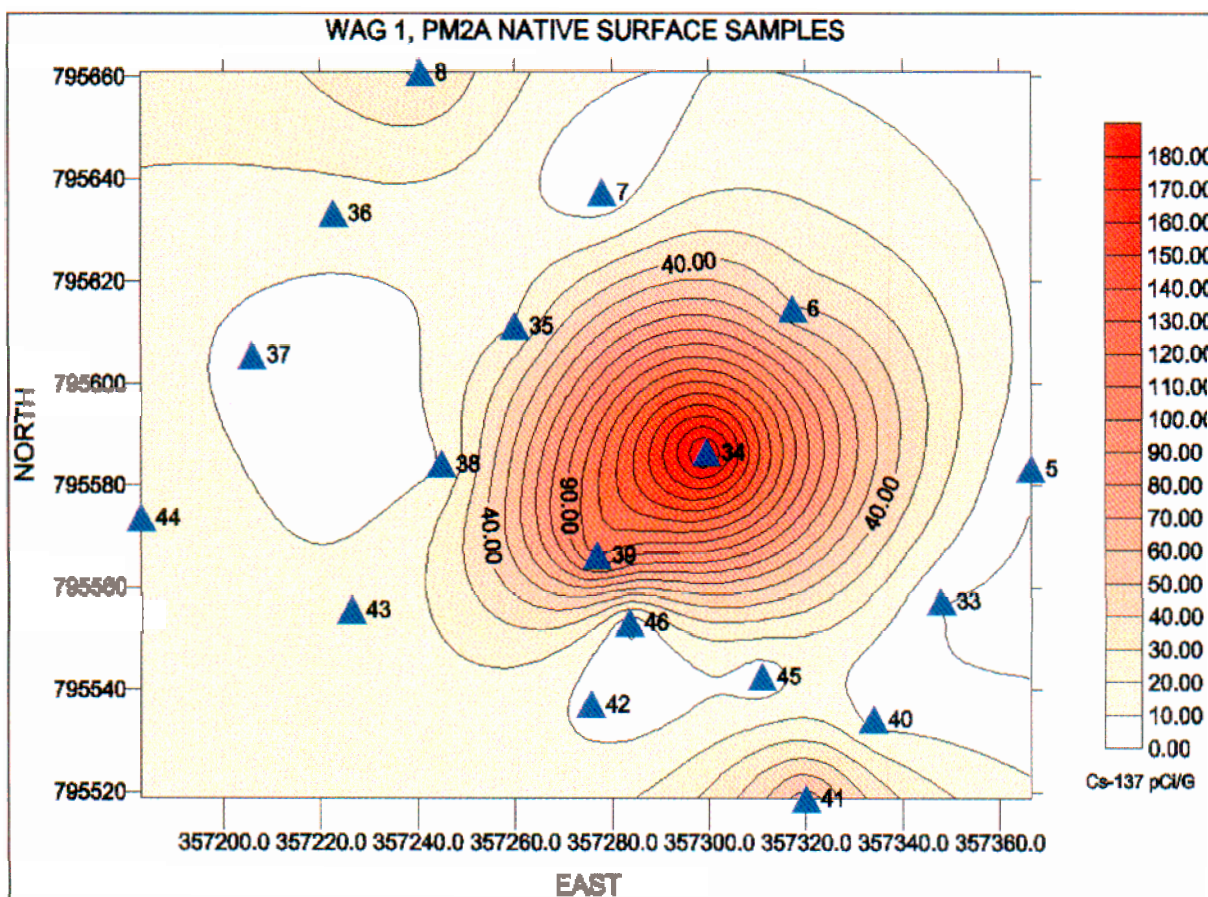


Figure 2: WAG 1- PM2A Area (0 inches Below Native Surface)

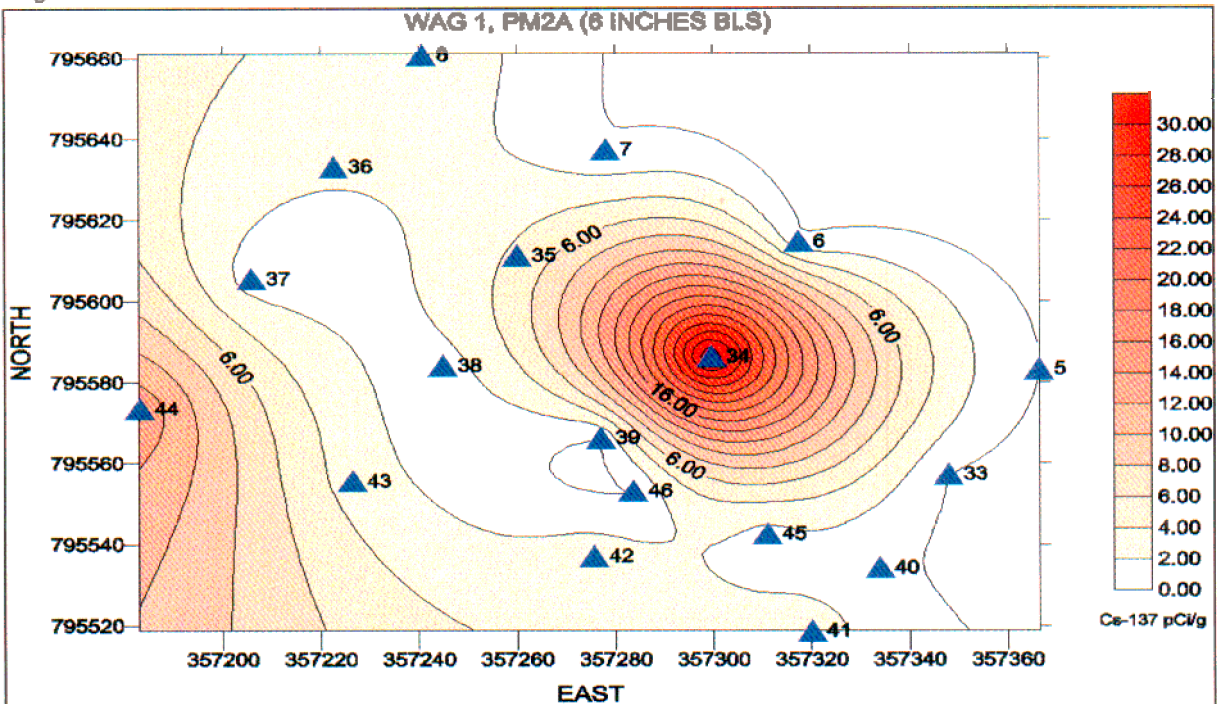


Figure 3: WAG 1- PM2A Area (6 inches Below Native Surface)

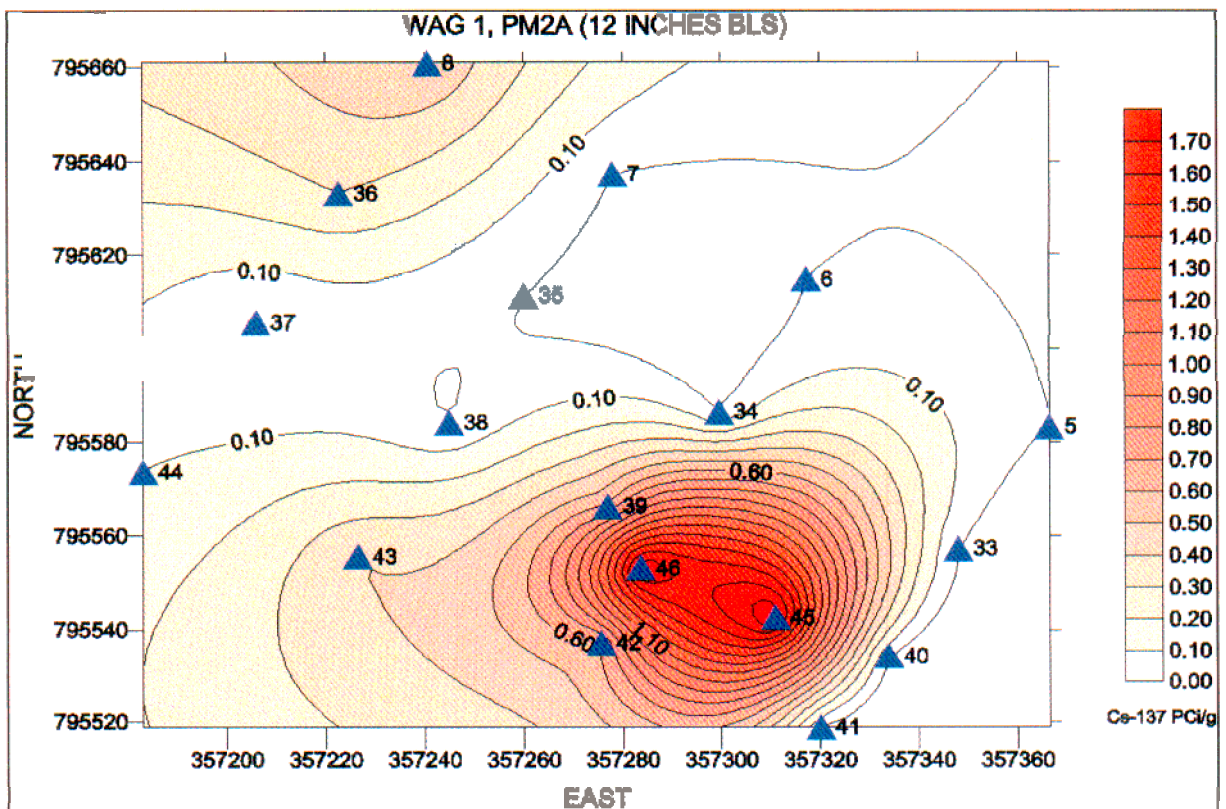


Figure 4: WAG 1- PM2A Area (12 inches Below Native Surface)



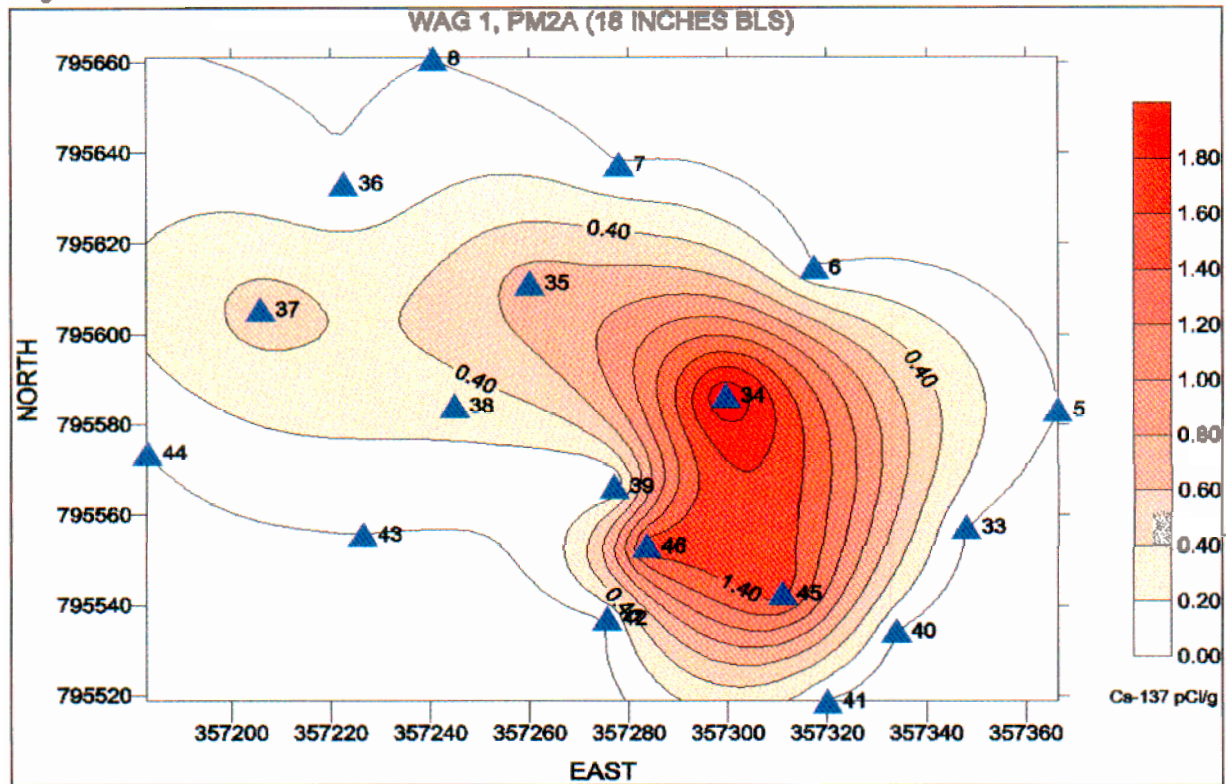


Figure 5: WAG 1- PM2A Area (18 inches Below Native Surface)

Figures 2-5 show that the contamination at or above 23.5 pCi/g of Cs-137 exists only at the surface and six inches below native surface level. At 12 and 18 inches below native surface level no Cs-137 exceed 23.5 pCi/g.

#### Data Analysis:

Table 1 below shows the statistical values for 0-18 inch BLS measurements.

Depth Below Native Surface	0"	6"	12"	18"
Number of Values	18	14	8	6
Minimum	0.3	0.2	0.1	0.3
25% Percentile	4.3	1.15	0.375	0.55
Median	11.1	2.65	0.55	1.1
75% Percentile	35.225	3.875	0.875	1.5
Maximum	184	32.2	0.6	2
Mean	29.933	5.057	0.750	1.083
Std. Deviation	47.108	8.504	0.639	0.677
Lower 95% CI	8.171	0.603	0.307	0.541
Upper 95% CI	51.695	9.511	1.193	1.625

Table 1.

#### Summary:

Core samples show that the PM2A Grid site contain Cs-137 levels above the 23.5 pCi/g limit down to at most 6" below native surface. The concentration of contamination appears to be restricted to a small area. Grid point PM2A-34 is the only area that exceeds the 23.5 pCi/g at 6" below native surface. If there are any question please do not hesitate to call Chris Oertel @ 6-3541 or Bart Morales @ 6-0205.

# APPENDIX 1

## WAG 1 PM2A GRID POINTS

ID	0 IN. BLS	6 IN BLS	12 IN BLS	18 IN BLS	NORTH	EAST
PM2A-5	0.8	ND	ND	ND	795583.402	357366.361
PM2A-6	40.3	0.4	ND	ND	795614.769	357317.342
PM2A-7	1.4	0.2	ND	ND	795637.527	357278.011
PM2A-8	41.7	4	0.5	ND	795660.916	357240.572
PM2A-33	0.3	ND	ND	ND	795557.408	357347.938
PM2A-34	184	32.2	ND	2	795586.469	357299.474
PM2A-35	20	4.4	ND	0.7	795611.462	357260.005
PM2A-36	14.4	2.3	0.3	ND	795633.312	357222.549
PM2A-37	7.1	1.1	ND	0.5	795605.648	357205.795
PM2A-38	9.5	1.3	ND	0.3	795584.219	357244.799
PM2A-39	104	ND	0.6	ND	795566.454	357276.939
PM2A-40	5.8	0.4	ND	ND	795534.326	357333.869
PM2A-41	66.7	3	ND	*	795518.803	357319.984
PM2A-42	7	3.5	0.6	ND	795537.172	357275.574
PM2A-43	12.7	3.1	0.4	*	795555.614	357226.306
PM2A-44	19	13.6	0.1	ND	795573.568	357183.088
PM2A-45	3.8	1.3	1.8	1.5	795542.682	357310.926
PM2A-46	0.3	ND	1.7	1.5	795553.196	357283.574

\* No data available

## **Appendix E**

### **Pertinent Field History for Calendar Year 2000 Sampling and Remediation Activities for TSF-06 and TSF-26**

## **Appendix E**

### **Pertinent Field History for Calendar Year 2000 Sampling and Remediation Activities for TSF-06 and TSF-26**

This appendix is a compilation of project emails that provides additional details regarding field work (sampling and remediation) conducted during calendar year 2000 for TSF-06 and TSF-26. This information is intended to supplement the information that already exists in the project files in the Environmental Restoration Optical Imaging System, which is discussed in the main text of this document.

**William P Boyd**

To: Gary D Mecham/GXM/CC01/INEEL/US@INEL, Craig L Reese/ACR/CC01/INEEL/US@INEL, Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, Raymond L Sayer/RYS/CC01/INEEL/US@INEL, Lori A Lopez/LW5/CC01/INEEL/US@INEL, Kory S Edelmayer/EDELKS/CC01/INEEL/US@INEL, Jerry C Batie/BATIJC/CC01/INEEL/US@INEL, Martin E Bartholomei/BARTME/CC01/INEEL/US@INEL  
cc: Douglass J Kuhns/DKH/CC01/INEEL/US@INEL

Subject: Planned Work April & May - TAN OU 1-10 at TSF-06 Area B and TSF-26 (PM-2A)

This note is to give a heads up to WAG 1 personnel regarding the RD/RA field activities planned for OU 1-10 in the next couple months. Please give me a call (6-2936, 6-0729, 520-1665, pager 6723) if you have any questions.

Activities planned at TSF-06 Area B (adjacent to Snake Avenue):

- Identify any locations of surface contamination greater than 2.3 pCi/g ( due to windblown contamination from 1991 to present)
- Need to identify if any of the areas surveyed by the hummer are due to shine from TSF-26
- Hand excavation at TSF-06 in 12 or more locations to determine soil contamination interface depth
- Determine the depth of the fill material that was placed over the contaminated soil
- Remove soil at TSF-06 to just above rad contamination interface and stock pile
- Humvee and DART survey TSF-06 to better define extent of wind blown contamination area
- Identify if any of the locations from the hummer are contaminated in the native soil ( 2 feet from bls)
- Sample rad areas at TSF-06, identified from Humvee and DART screening
- Sample results will determine if soil will need to be removed, where soil will be removed, and approximate volumes of removal

Activities planned at TSF-26 (PM-2A Tanks):

- Humvee and DART survey PM-2A area (TSF-26)
- Sample rad areas at TSF-26, identified from Humvee and DART screening
- Clean up PM-2A area, including covering of soil piles
- Sample results at PM-2A area will determine if soil will need to be removed, where soil will be removed, and approximate volumes of removal (planned for FY 01)

In addition, OU 1-10 is working on institutional controls and CERCLA signs on all WAG 1 sites, including OU 1-07B well locations. This involves Bob Sutherlin surveying for us and documenting the sites through the photo lab and site walkdowns. Call me with questions regarding this other field work as well.



Lori A Lopez  
04/27/2000 04:50 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Maurice E McAffee/MCAFFEME/CC01/INEEL/US@INEL, Teklaann M Staley/TEK/CC01/INEEL/US@INEL, Rex B Firth/FTH/CC01/INEEL/US@INEL, Raymond L Sayer/RYS/CC01/INEEL/US@INEL, Rodney K Wadsworth/RKW/CC01/INEEL/US@INEL, Edward J Lang/EDD/CC01/INEEL/US@INEL, Christophe P Oertel/CPO/CC01/INEEL/US@INEL, Stacey J Hill/HILLSJ/CC01/INEEL/US@INEL

cc:

Subject: PM-2A Tanks

Thanks to Ray the work package is ready to go, he will get the SAD from TAN to sign Monday morning at 08:00. Rod Wadsworth with D&D will arrange for the equipment to be mobilized at the PM-2A Tank area. We will have the pre-job tuesday at 08:00 if there is any questions call me at 521-2409 or page me at 7678.



Lori A Lopez  
05/01/2000 04:27 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Rodney K Wadsworth/RKW/CC01/INEEL/US@INEL, Raymond L Sayer/RYP/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Maurice E Mcaffee/MCAFFEME/CC01/INEEL/US@INEL, Edward J Lang/EDD/CC01/INEEL/US@INEL, Shaun C Comba/COMBSC/CC01/INEEL/US@INEL, Geoffrey G Marsh/MARSGG/NON/INEEL/US@INEL

cc:

Subject: PM-2A Tank

A pre-job briefing is scheduled for 08:00 in the big conference room (135). Will go over all permits and work package before the job starts if there is a problem call my cell 521-2409 or page me at 7678 thanks Lori.

**Janet L Hill**  
05/09/2000 01:19 PM

To: Max R Leavitt/LEAVMR/CC01/INEEL/US@INEL  
cc:

Subject: TSF-26 Stockpiles and Wooden Box Data

Russell,

I was going to send you this late last week but I think I forgot, hopefully this isn't a duplication. The attached file gives the sample results for the stockpiles and wooden box that are currently being placed in soft sided waste containers at TSF-26 (TAN). Please take a look and verify that these levels are okay for proposed storage at RWMC. It is looking that we will have to go to the WAG 3 ICDF but we don't want to rule out any options yet. Thanks again for your help. Give me a call if you have any questions.



TSF-26 Post-ROD Sample Data.xls



Stockpile figure 2.doc



(email attachment intentionally not included)



Max R Leavitt  
05/15/2000 02:30 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:

Subject: ER soils

Janet,

I have reviewed the information that you sent me for the sampling and analysis of the ER soils. Everything looks good. I will use this data to explore our options for shipment of ER soils to Nevada Test Site.

Thanks,  
Russell Leavitt

**Mark D Elliott**

05/30/2000 10:14 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL  
cc: Douglass J Kuhns/DKH/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL

Subject: Action from TSF-26/06 Soil Removal Meeting 5/24/00

Last week (5/24/00) a meeting was held to discuss and understand the upcoming work activities planned for TSF-26/06. Based upon that meeting, the following actions were identified:

**TSF-26 (Phase I):**

1. Coordinate the approval to transfer TSF-26 soil bags (22) to the Radioactive Parts Service and Storage Area (RPSSA);
2. Coordinate the development and approval of Work Control Documentation (as required);
3. Remove/transfer soil bags (22) from TSF-26 to RPSSA;
4. Screen/survey the entire TSF-26 area after bag removal;
5. Generate final screening/surveying maps and place in project file(s);
6. Apply affixant/emulsion (Road Oyl, etc.) to entire area as required.

**TSF-06:**

1. The TSF-06 work (not including Snake Ave) would be performed in IV Phases:
  - Phase I - Remove and containerize rad soil cover down to 6";
  - Phase II - Remove and bag clean soil down to 3"-6" above native soil/yellow plastic as installed during previous clean-up activities;
  - Phase III - Radiological surveying, and sampling & analysis of native soil area (i.e. soil below yellow plastic sheeting); and
  - Phase IV - Final clean-up (bag and remove rad soil, confirmatory rad surveying/sampling, etc.) and release of TSF-06. All soils removed and not shipped for re-use or long-term treatment/storage during previous phases will be removed/shipped during this phase.

Based upon said meeting, the following assumptions were identified:


**Assumptions:**

1. The TSF-06 (Area B) contamination is "wind-blown" originating from TSF-26;
2. The prevailing winds are from TSF-26 to TSF-06;
3. If the contamination is "wind-blown", then the TSF-06 radiological contamination is located in the top 3 inch's of soil (1"-3");
4. Samples taken (HUM-V, screening surveys & soil samples at 1" intervals) will adequately measure 12" below the yellow plastic sheeting installed during past clean-up activities;
5. The TSF-06 work (IV phases) would not include any work associated with Snake Ave. (removal, sampling, rad soil removal, site release, road replacement, etc.);
6. Phase IV will not be implemented until the TSF-26 windblown contamination problem has been mitigated.
7. The hot spots located inside TSF-26 are either "localized or spread". If hot spots are "localized", efforts should focus on clean-up or covering TSF-26, or postponing clean-up at TSF-06. If hot spots are "spread", efforts should focus on covering TSF-26 or postponing clean-up of TSF-06.



Lori A Lopez  
05/25/2000 02:36 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:

Subject: Re: Stockpiles/Wooden Box Bagging 

Stockpile	Bag	Weight
3	Bag 1	19,000 lbs
3	Bag 2	20,900 lbs
3	Bag 3	22,000 lbs
3	Bag 4	23,000 lbs
3	Bag 5	20,300 lbs
3	Bag 6	25,000 lbs
3	Bag 7	23,400 lbs
3	Bag 8	20,700 lbs
3	Bag 9	20,700 lbs
3	Bag 10	19,700 lbs
3	Bag 11	19,900 lbs
3	Bag 12	22,100 lbs
3	Bag 13	22,300 lbs
3	Bag 14	23,000 lbs
3	Bag 15	23,800 lbs
3	Bag 16	21,800 lbs
3/1	Bag 17	21,200 lbs
1	Bag 18	21,100 lbs
1	Bag 19	21,800 lbs
1/3	Bag 20	21,000 lbs
2	Bag 21	19,000 lbs
2	Bag 22	21,800 lbs

Rad con has not surveyed bags so I do not have readings. I hope this will help you out Lori.

**Mark D Elliott**

05/30/2000 01:59 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, Douglass J Kuhns/DKH/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL, John G Dineen/JGD/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL

cc:

Subject: Roll-Off Mtg

Last week (5/25/00), a status meeting was held to discuss activities associated with design and procurement of roll-off containers. The following is a summary of that discussion:

1. Roll-offs can be manufactured for any size based upon the requirements/specification;
2. The biggest limiting factor to the design and/or size of the roll-off is maximum weight to be held;
3. A soil bag (8'x8'x4') full of soil will weigh approximately 23,000 lbs (85 lbs/ft<sup>3</sup>);
4. All soil will be shipped to either ICDF or RWMC for treatment, storage &/or disposal;
5. Assume that there will be no degeneration of the inner bag (soil bag) as a result of: moisture, mold, freeze, thaw, etc.;
6. Assume bag degeneration will result from UV;
7. A trailer will be required for container transfer/shipment;
8. A loading device will be required;
9. A design for the lid will be required;
10. A container design/specification will be required;
11. The roll-off will be capable of accepting either soil liners or "filled" soil bags;
12. Lease options are available, however all containers must be returned in a "clean" condition;
13. A manufacturer can manufacture 2 roll-off containers/week;
14. There will be approximately 10,000 ft<sup>3</sup> of rad soil removed from the top 6" of TSF-06 (Area B);
15. If one soil bag hold 256 ft<sup>3</sup> (8'x8'x4'), then 39 bags will be generated;
16. The container specification will require 30 days to generate;
17. The procurement process will take a minimum of 45 days to complete;
18. If design identifies 1 bag/roll-off, then 39 roll-offs will be required (approximately 15 weeks to manufacture). If design identifies 2 bags/roll-off, then 20 roll-offs will be required (approximately 10 weeks to manufacture)
19. Quality control and inspection will be required for each roll-off package (??? 2 days/roll-off);

The following questions remain to be answered:

1. What are the maximum Cs-137/Sr-90 levels for which a soft sided bag could be used?
2. In 1 year (8/01), can roll-offs containing filled soil bags be shipped over public highways "as is"?
3. What will be the vehicle weight capacity?
4. What is the avg and max width of the roll-off package?
5. What will be the ID and OD of the roll-off package?

Attached is a draft schedule representing the information presented above.



(email attachment intentionally not included)

**Mark D Elliott**

06/01/2000 06:22 AM

To: William P Boyd/WPB/CC01/INEEL/US@INEL, Raymond L Sayer/RYS/CC01/INEEL/US@INEL  
cc: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, Douglass J Kuhns/DKH/CC01/INEEL/US@INEL

Subject: TSF-06 Soil Removal

Pat, the decision was made during last Tuesdays Status Meeting (5/30/00) to continue the process to remove, bag and stage (RPSSA) the upper 6" of rad contaminated soil, and to remove and stockpile the clean fill material down to approximately 3-6" above the yellow plastic (installed during previous activities). The plan is to implement and complete this work as soon as all the required documentation has been written, approved and placed in the field file. All required supplies should also be staged prior to implementation.

Mark

**Mark D Elliott**

06/07/2000 06:20 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, Jerry P Shea/YRR/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Raymond L Sayer/RYP/CC01/INEEL/US@INEL, Errol B Mobley/MOBLEYEB/CC01/INEEL/US@INEL, Susan K Larsen/LRN/CC01/INEEL/US@INEL, Kevin E Streeper/STR/CC01/INEEL/US@INEL, Corrinne Jones/CRJ/CC01/INEEL/US@INEL, Marshall L Marlor/MARLML/CC01/INEEL/US@INEL, Maurice E McAfee/MCAFFEME/CC01/INEEL/US@INEL  
cc: Douglass J Kuhns/DKH/CC01/INEEL/US@INEL

Subject: Temporary Storage of WAG-1 Soil Bags @ RPSSA

A meeting was held last week (6/1/00) to discuss issues associated with the storage of WAG-1 soil filled bags at RPSSA. As a result of that meeting, the decision was made by all concerned that WAG-1 soil filled bags can/will be stored at RPSSA. The following is a list of the requirements identified:

1. All bags should be tagged and marked with unique identification numbers;
2. All bags should be weighed and marked with said weight;
3. Protection against Ultra Violet (UV) degradation should be provided and installed on each bag;
4. A letter should be generated and submitted from WAG-1 to TANO (Sue Larsen, Kevin Streeper, Corrinne Jones, Errol Mobley) notifying them of the intent to ship/store said soil bag containers at RPSSA. Additional information should include the number of containers, container identification numbers, individual container weights (if known) and proposed storage duration.

If I have missed something, please let me know. I appreciate everyone's participation.

Mark





Lori A Lopez  
06/08/2000 04:22 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Rodney K Wadsworth/RKW/CC01/INEEL/US@INEL

cc:

Subject: PM-2A area

Rod will work on scheduling people so we can start moving bags on the 19th. The work package will need to be completed, if he gets the man power they will be at the job. Please let me know if something changes.



Lori A Lopez  
06/08/2000 04:14 PM

To: Maurice E Mcaffee/MCAFFEME/CC01/INEEL/US@INEL, Errol B  
Mobley/MOBLEYEB/CC01/INEEL/US@INEL, Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P  
Boyd/WPB/CC01/INEEL/US@INEL  
cc:

Subject: WAG-1

Starting on the 19th of June a full coverage RCT will be needed until the end of July. On the week of the 19th for moving bags to the RPSSA, and starting the 26th bagging soil at TSF-06 area. Please let me know if that will be possible thanks Lori.



Max R Leavitt  
06/12/2000 01:05 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Roger R Piscitella/RRP/CC01/INEEL/US@INEL

Subject: ER Soils

Janet,

I have finally finished training and am back at my office. Here is a brief overview of the status for the disposal of low-level waste at NTS.

On the week of May 22, 2000 I attended the Low-level waste generator conference for Nevada Test Site. According to the PEIS ROD the Nevada Test Site has been identified as a preferred site for low-level waste disposal. This disposal option could be viable for the disposal of the large volumes of contaminated soils that we have.

In order for the INEEL to come on line as a certified generator to send our waste to NTS, we will have to meet their criteria and pass their audits. From the presentations and from what the other generating sites said, it appears that we would not require much to meet their requirements. One of the generators that presented said that they were certified in about three months. With all of the audits and reviews I would anticipate that it would be about the same time frame.

Cost is the other aspect of sending the soils to NTS. First, we have the transportation cost. The transportation cost was not part of the workshop. The second cost is the cost for disposal that NTS charges each generator. The cost is based on volume projections from all of the generators. Currently the cost is \$9.00 per cubic foot. I usually estimate the volume of a soft-sided bag to be about 7 m3. The cost per bag would be about \$2,225. This cost would probably decrease if we began to ship large volumes.

At the present, my time is being consumed with some high priority projects. In the middle of July I will begin to work this issue once again so that we can find the most feasible and cost-effective way to dispose of our high volume low-level waste.

If you have any questions please contact me at 6-4599.

Thanks,  
Russell Leavitt

**Janet L Hill**  
06/12/2000 08:09 AM

To: William P Boyd/WPB/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL, Lori A Lopez/LW5/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Rodney K Wadsworth/RKW/CC01/INEEL/US@INEL, creese@ch2m.com, Robert W Sutherlin/SUTHRW/CC01/INEEL/US@INEL

cc:

Subject: Excavation at TSF-06 and removal of soil bags from TSF-26

From our meeting last Thursday at TSF-06, we discussed removal of the overburden in two phases:

- Phase 1 consists of removing 6" of contaminated soil from the edge of the asphalt to the delineated excavation limits "pink line"
- Phase 2 consists of removing the remaining overburden, estimated to be between 1 to 2' over the entire area, using fulltime RADCON support to ensure soil is clean. The clean overburden removal will follow the shoulder of the road (e.g. not penetrate vertically through the shoulder but follow along the shoulder until the toe is reached). The attached figure was drawn at the site that day and shows the 6" contaminated overburden and the remaining clean overburden that will be removed.

We discussed that the removal at TSF-06 would start June 26th and that removal of soil bags from TSF-26 would start June 19th. Rod, we need to make sure these dates work for you. Pat said that Bob Sutherlin would be able to keep us in line as we excavate. If anyone has any questions, please contact Pat or myself. Thanks.



- TSF-06.tif



Mark T Langlois

06/15/2000 02:07 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: William P Boyd/WPB/CC01/INEEL/US@INEL, Raymond L Sayer/RYPD/CC01/INEEL/US@INEL, Rex B Firth/FTH/CC01/INEEL/US@INEL, Corrinne Jones/CRJ/CC01/INEEL/US@INEL, Jerry P Shea/YRR/CC01/INEEL/US@INEL

Subject: Re: soil removal - TSF-06

Thanks for your help Janet. On a related note, the soil bags to be moved to the RPSSA should be covered due to the degradation of the ultra violet light on the nylon rigging straps. This could prevent you from shipping them to RWMC in the future, could credibly cause a pretty nasty accident, would not be fun shoveling them out by hand and could give half the desert a peptic ulcer from the ORPS reporting and critiquing that would happen. Up to you.....

Janet L Hill

**Janet L Hill**  
06/15/2000 11:15 AM

To: Mark T Langlois/LANGMT/CC01/INEEL/US@INEL  
cc: William P Boyd/WPB/CC01/INEEL/US@INEL, Raymond L Sayer/RYPD/CC01/INEEL/US@INEL, Rex B Firth/FTH/CC01/INEEL/US@INEL, Corrinne Jones/CRJ/CC01/INEEL/US@INEL, Jerry P Shea/YRR/CC01/INEEL/US@INEL  
Subject: Re: soil removal - TSF-06

Thanks for the note, we will comply with your recommendations for the safety of all workers and TAN traffic. WAG 1 plans to bring clean material in up to the edge of the asphalt sloping down to the original shoulder to ensure there is no abrupt edge. Our plans are to perform this filling to abate the hazard at the completion of removing the soil and performing surveying/sampling, and will not leave an abrupt edge at the completion of our work.

Mark T Langlois



Mark T Langlois  
06/15/2000 08:58 AM

To: Raymond L Sayer/RYPD/CC01/INEEL/US@INEL  
cc: Corrinne Jones/CRJ/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, Rex B Firth/FTH/CC01/INEEL/US@INEL  
Subject: soil removal - TSF-06

Ray, after discussions with you regarding the soil removal along the roadway at TAN the following issues will need to be addressed prior to start up.  
The road from the SMC direction will be posted "Men Working" and the road from the TAN direction will have to be posted with "Shoulder Work" as well. In addition to the signs (which I will help you position) ALL workers will be required to wear traffic vests in addition to the normal ER PPE.

I also understand ER plans are to leave the abrupt edge for as long as a year. This represents an unacceptable risk to TAN personnel in the interim period until the roadbed remediation takes place. As the TAN safety engineer, I will require the edge to be brought back to grade to abate this hazard.

If you have any questions feel free to call me. Regards



Lori A Lopez  
06/23/2000 06:13 PM


To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:

Subject: Bags

The bags are all in the RPSSA the one weight was 23,900 LBS. See ya Monday it is 06:15 p.m.

**Janet L Hill**  
06/23/2000 04:24 PM

To: Max R Leavitt/LEAVMR/CC01/INEEL/US@INEL  
cc:

Subject: Re: ER Soils 

Thanks Russell for the information, it is good to hear you learned a lot from the NTS conference. Let's keep in touch in the next few weeks as WAG 1 is going through growing pains deciding whether to wait for the ICDF at WAG 3 or go to NTS - one of the first things I would like you to look into when you have time is the transportation costs of going to NTS and come up with an overall cost estimate for WAG 1. Give me a jingle when you complete your other work and we can talk. Again, thanks much!

Max R Leavitt



Max R Leavitt  
06/12/2000 01:05 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Roger R Piscitella/RRP/CC01/INEEL/US@INEL  
Subject: ER Soils

Janet,

I have finally finished training and am back at my office. Here is a brief overview of the status for the disposal of low-level waste at NTS.

On the week of May 22, 2000 I attended the Low-level waste generator conference for Nevada Test Site. According to the PEIS ROD the Nevada Test Site has been identified as a preferred site for low-level waste disposal. This disposal option could be viable for the disposal of the large volumes of contaminated soils that we have.

In order for the INEEL to come on line as a certified generator to send our waste to NTS, we will have to meet their criteria and pass their audits. From the presentations and from what the other generating sites said, it appears that we would not require much to meet their requirements. One of the generators that presented said that they were certified in about three months. With all of the audits and reviews I would anticipate that it would be about the same time frame.

Cost is the other aspect of sending the soils to NTS. First, we have the transportation cost. The transportation cost was not part of the workshop. The second cost is the cost for disposal that NTS charges each generator. The cost is based on volume projections from all of the generators. Currently the cost is \$9.00 per cubic foot. I usually estimate the volume of a soft-sided bag to be about 7 m3. The cost per bag would be about \$2,225. This cost would probably decrease if we began to ship large volumes.

At the present, my time is being consumed with some high priority projects. In the middle of July I will begin to work this issue once again so that we can find the most feasible and cost-effective way to dispose of our high volume low-level waste.

If you have any questions please contact me at 6-4599.

Thanks,  
Russell Leavitt





Max R Leavitt  
07/31/2000 10:26 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Roger R Piscitella/RRP/CC01/INEEL/US@INEL

Subject: ER soils

Janet,

The following will need to be completed in order to prepare shipments of the bags of soil to the RWMC.

First, we will need to bar-code each of the bags. I will get the printed bar-codes this week.

Next, I will need the weights of each bag and which pile that bag came from.

I will need a copy of the analytical data, as well as a copy of the "no longer contained in" notification from the state.

Finally, each bag needs to be marked with the bar-code #, weight, generator name, mail stop, and phone number. Also, the maximum radiation dose level at contact and at one meter needs to be included in the markings. This information needs to be on two opposite sides and the top.

As soon as I get bar-codes on the containers and the weights with the radiological data , I will get them entered into our data base and start the approval process so that as soon as we can we will be able to start shipment to the RWMC (probably starting the first of September).

I will call you as soon as I get the bar-codes so that we can start putting this together.

Thanks,

Russell Leavitt



Max R Leavitt  
08/10/2000 04:34 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Dale E Snyder/SNYDDE/CC01/INEEL/US@INEL

Subject: WAG 1 LLW soil

Janet,

I am working with Lori Lopez to arrange shipments to the RWMC of the WAG 1 soil. As soon as we get the "no longer contains" ruling from the state we would like to start shipments. Prior to accepting waste at the RWMC, I need to do a complete waste characterization in our IWTS data base. Please send me a copy of the data packages from the sampling and analysis. I need to include much of this data in the characterization profiles. My mail stop is 4142, and my fax is 6-2714. If I can get this information before the ruling from the state I can complete most of the preliminary work.  
If you have any questions please call me at 6-4599.

Thanks,  
Russell Leavitt



Lori A Lopez  
08/16/2000 06:19 AM


To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL, Douglass J  
Kuhns/DKH/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL  
cc:

Subject: Soil bags

From bag 31-49 we had the asphalt from the east end mixed with the soil and approx. 5% mix, then we started bagging the soil that we stockpiled on the west end and the asphalt chunks were larger and estimate 20% in bags 50-75. The biggest asphalt chunks 1 foot diameter.



Max R Leavitt  
08/16/2000 02:13 PM

To: Harvey D Welch/HDW/CC01/INEEL/US@INEL, Roger R Piscitella/RRP/CC01/INEEL/US@INEL, Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc: Jim R Bishoff/JBX/CC01/INEEL/US@INEL, Theodore D Cline/TDC/CC01/INEEL/US@INEL, Steven D Croft/SD8/CC01/INEEL/US@INEL, Dale E Snyder/SNYDDE/CC01/INEEL/US@INEL, Lori A Lopez/LW5/CC01/INEEL/US@INEL, W E Caudle/CAUDWE/CC01/INEEL/US@INEL  
Subject: Re: PROJECTED LLW SHIPMENTS TO THE RWMC FOR THE WEEKS OF, 21 AUGUST & 28 AUGUST, SEPTEMBER 4 2000. 

At WAG 1 (TAN) we have 97 bags of low-level waste that we need to begin to schedule for shipment to the RWMC. I can not set a definite schedule for these bags yet. We are waiting a "no longer contains" ruling from the state. As soon as the ruling comes I will place these bags in ITWS and we would like to begin shipping at least 20 bags per week, 5 bags per truck and shipping twice per week. This ruling could come as soon as the end of this week.

These bags are important because they will help us to keep our commitment with DOE to dispose of 4,000 m3 this year at the RWMC.

As soon as I get word, I will put out a shipping schedule. (contingent on turn around times for two trucks, weather, and the fact that these trucks **MUST** be held at central over the weekends to stage for fire emergency)

If there are any questions or concerns please contact me at 6-4599.

I appreciate your help in this matter.

Thanks,

Russell Leavitt



Lori A Lopez  
08/17/2000 04:20 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL  
cc: Douglass J Kuhns/DKH/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL

Subject:

This week the TSF-06 sampling has been completed, the dart surveying, and Bob finished surveying in sample points. Bob surveyed the samples points for the TSF-26 area and will start sampling Monday. The bags have all been moved to the RPSSA, and the area was cleaned today. I have worked with Russell Leavett and will be sending 5 bags to RWMC on Wed. Clay will be gone next week so the trailers were moved today and one truck loaded. Monday we will finish labeling the bags.



Max R Leavitt  
11/27/2000 09:53 AM

To: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL  
cc: Lori A Lopez/LW5/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Lonney L Nate/NATELL/CC01/INEEL/US@INEL

Subject: WAG 1 shipments

I have talked with the RWMC and they will begin to accept shipments of soft-sided bags. They will off load four bags every other day at the SDA. The trucks will be unloaded at the edge of the pit until their crane is back online for disposal in the pit.

The two trucks that we have setting there will shortly be unloaded. Last week they said that they would be unloaded on Wednesday of last week. Today they said that it would probably be tomorrow.

I think that we should plan to send one truck today and two trucks on Wednesday.

I will keep you all informed of any problems with this schedule.

Thanks,

Russell Leavitt



Max R Leavitt  
11/27/2000 01:13 PM

To: Allen E Jantz/AJZ/CC01/INEEL/US@INEL  
cc: Douglass J Kuhns/DKH/CC01/INEEL/US@INEL, Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Lori A Lopez/LW5/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Lonney L Nate/NATELL/CC01/INEEL/US@INEL, Jerry P Shea/YRR/CC01/INEEL/US@INEL

Subject: Re: WAG 1 shipments

Al,

I talked with Harvey Welch this morning about being able to ship three trucks every other day (six bags). That will be fine with the RWMC. He informed me that the only problem RWMC had with three trucks is that they thought that one of our trucks needed to go in for PM. I believe, however, that they were referring to the truck that we just got out of PM several weeks ago. I will check with Robby Gonzales to make sure that we are covered.

We are also working with Lonney Nate of P&T on the transport of the bag that reads 250 mR/hr. We hope to have that issue resolved and get that bag shipped out soon.

I'll keep you updated.

Thanks,  
Russell Leavitt

Allen E Jantz



Allen E Jantz

11/27/2000 11:17 AM

To: Max R Leavitt/LEAVMR/CC01/INEEL/US@INEL, Douglass J Kuhns/DKH/CC01/INEEL/US@INEL  
cc: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Lori A Lopez/LW5/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Lonney L Nate/NATELL/CC01/INEEL/US@INEL, Jerry P Shea/YRR/CC01/INEEL/US@INEL

Subject: Re: WAG 1 shipments

Russell, thanks for the update. And glad to here bags can begin moving again. Pat said he talked with you this morning and I would like to confirm that we want to explore further how to increase the number of bags shipped per week. We still have the 41 bags left and to be done before Christmas (in four weeks) we need to move about 12 bags per week rather than only 8 bags per week.

Doug, Pat is obtaining the information on the bags so we can determine if we need to prioritize. Pat also suggested that we work through Russell to have a meeting or conference call with Jim Bishoff, the RWMC Operations Manager, to see what else could be worked out to be able to deliver more bags to RWMC. Pat will include a list of the folks that we need to work this whole thing out with (i.e. TAN, RWMC, WGS, D&D Support, etc.).

Al

Max R Leavitt



Max R Leavitt  
11/27/2000 09:53 AM

To: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL  
cc: Lori A Lopez/LW5/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Lonney L Nate/NATELL/CC01/INEEL/US@INEL  
Subject: WAG 1 shipments

I have talked with the RWMC and they will begin to accept shipments of soft-sided bags. They will off load four bags every other day at the SDA. The trucks will be unloaded at the edge of the pit until their crane is back online for disposal in the pit.

The two trucks that we have setting there will shortly be unloaded. Last week they said that they would be unloaded on Wednesday of last week. Today they said that it would probably be tomorrow.

I think that we should plan to send one truck today and two trucks on Wednesday.

I will keep you all informed of any problems with this schedule.

Thanks,

Russell Leavitt





Max R Leavitt  
11/29/2000 02:00 PM

To Harvey D Welch/HDW/CC01/INEEL/US@INEL, Steven D Croft/SD8/CC01/INEEL/US@INEL, Charles E Boehm/BOEHCE/CC01/INEEL/US@INEL, Clinton E Sisson/CES/CC01/INEEL/US@INEL, Richard A Panter/PANTRA/CC01/INEEL/US@INEL, Roger M Claycomb/CLAYRM/CC01/INEEL/US@INEL, Sheila M Lints/SML/CC01/INEEL/US@INEL, Lonney L Nate/NATELL/CC01/INEEL/US@INEL, Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Lori A Lopez/LW5/CC01/INEEL/US@INEL, Marshall L Marlor/MARLML/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, W E Caudle/CAUDWE/CC01/INEEL/US@INEL

CC

Subject: shipments

Here is the big list of the shipments that we would like to attempt to send to the RWMC this Friday and Saturday.  
Please approve these as appropriate. If you have any questions please call me at 6-4599.  
Thanks for all of your time and help in this matter.  
Russell Leavitt

Shipment	Barcode	Bag#	Mass
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00WAG/RWMC-30	WAG000068	47	21000
12/01/2000	WAG000069	37	19000
00WAG/RWMC-31	WAG000070	38	20900
12/01/2000	WAG000071	67	21200
00WAG/RWMC-32	WAG000072	66	21200
12/01/2000	WAG000073	48	19600
00WAG/RWMC-33	WAG000074	19	19000
12/01/2000	WAG000075	50	21000
00WAG/RWMC-34	WAG000076	65	20900
12/01/2000	WAG000077	61	19100
00WAG/RWMC-35	WAG000078	60	21000
12/01/2000	WAG000079	59	21500
00WAG/RWMC-36	WAG000080	58	21400
12/01/2000	WAG000081	6	20600
00WAG/RWMC-37	WAG000082	1	20700
12/01/2000	WAG000083	57	20000
00WAG/RWMC-38	WAG000084	5	22800
12/01/2000	WAG000085	63	21000
00WAG/RWMC-39	WAG000086	64	21300
12/01/2000	WAG000087	62	21600
00WAG/RWMC-40	WAG000088	44	22000
12/01/2000	WAG000089	71	14000
00WAG/RWMC-41	WAG000090	52	21000
12/01/2000	WAG000091	73	21000
00WAG/RWMC-42	WAG000092	74	19500
12/02/2000	WAG000093	72	19900
00WAG/RWMC-43	WAG000094	75	20800
12/02/2000	WAG000095	49	21800
00WAG/RWMC-44	WAG000096	42	18700
12/02/2000	WAG000097	11	20600
00WAG/RWMC-45	WAG000098	23	19800
12/02/2000	WAG000099	30	17300
00WAG/RWMC-46	WAG000100	17	18800
12/02/2000	WAG000101	15	19000
00WAG/RWMC-47	WAG000102	24	18900
12/02/2000	WAG000103	25	18100
00WAG/RWMC-48	WAG000104	26	19500
12/02/2000	WAG000105	51	19800



Max R Leavitt  
12/04/2000 11:42 AM

To: Laurent E Chigbrow/LC3/CC01/INEEL/US@INEL, Max D Ruska/RUS/CC01/INEEL/US@INEL, W E Caudle/CAUDWE/CC01/INEEL/US@INEL, William P Boyd/WPB/CC01/INEEL/US@INEL, Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, Albert E Millhouse/AEM/CC01/INEEL/US@INEL  
cc: Robert M Gonzales/RG9/CC01/INEEL/US@INEL, Dale E Snyder/SNYDDE/CC01/INEEL/US@INEL, Lonney L Nate/NATELL/CC01/INEEL/US@INEL, Sheila M Lints/SML/CC01/INEEL/US@INEL

Subject: shipments

On Friday and Saturday (12/1/00 and 12/2/00) thirty-four soft-sided bags of low-level waste were sent to the RWMC for disposal. This constitutes approximately 250 m3 and 680,000 lbs of waste disposal in two days. There is only one bag of waste remaining. The remaining bag will need special DOT considerations due to radiation concerns. After shipping the remaining bag this project will be closed out. Ninety-seven bags will have been shipped to the RWMC for disposal.

I would like to thank all those who went the extra mile on Friday and Saturday to make this happen.

Pat Boyd was instrumental in making all of the overtime arrangements and in scheduling equipment.

Robby Gonzales and his D&D crew were willing to sacrifice their weekend to make sure the proper bags were loaded and transported safely.

Lonney Nate and Sheila Lints really came through with very limited time to fill in the IWTS information and generate shipping papers. They were then willing to manipulate their schedule to accommodate an overtime shipping schedule.

Ed Caudle played a key role in organizing RWMC operations for receiving and unloading all of the bags. He and his crew did an excellent job in safely and efficiently turning trucks around without delay.

I had many people tell me last week that there was no way that we could ship this number of bags in such a short period of time. With the right combination of determined people we were able to prove them wrong. I would like to thank each one of these people and for their efforts. This was a great team effort.

If you have any questions please call me at 6-4599.

Thanks,

Russell Leavitt



Max R Leavitt  
12/07/2000 11:42 AM

To: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, Dale E Snyder/SNYDDE/CC01/INEEL/US@INEL  
cc:

Subject: Waste Disposal


The purpose of this email is to notify you that this morning ,12/7/00, one bag of soil from WAG one was sent to the RWMC for disposal. This bag was the last of 97 bags from TSF-06 and TSF-26. If you have any questions please contact me at 6-4599.

Thanks,  
Russell Leavitt



Robert A Montgomery  
12/14/2000 07:40 AM

To: William P Boyd/WPB/CC01/INEEL/US@INEL  
cc: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL, Martin J Edwards/MJE/CC01/INEEL/US@INEL, Daniel B McDonald/DBD/CC01/INEEL/US@INEL, Ray F Jensen/RFJ1/CC01/INEEL/US@INEL, Marshall L Marlor/MARLML/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL

Subject: Re: Listed Waste Issue TSF-06 Back hoe 

Pat, in response to your question:

1. We have received a NLCi determination on the soil we moved with the backhoe (soil north of the road and PM2-A piles south of the road). Therefore, any soil on the backhoe is not contaminated with listed waste. Any decon materials or solutions generated during decon of the backhoe will not carry the F001 listed waste code from soil.
2. We could generate a listed waste through our decon procedures. Example: If we used acetone to decon the metal, then waste decon solution and wet rags would carry the F003 listing.
3. If we used soap and water, masslins, isopropyl alcohol, or other routine decon methods, then it is unlikely the decon materials would be classified as either listed or characteristic hazardous waste. However, as always, any solid waste we generate will be subject to a hazardous waste determination prior to disposal.

Bob

William P Boyd



William P Boyd  
12/12/2000 02:00 PM

To: Robert A Montgomery/RTM/CC01/INEEL/US@INEL  
cc: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL, Martin J Edwards/MJE/CC01/INEEL/US@INEL, Daniel B McDonald/DBD/CC01/INEEL/US@INEL, Ray F Jensen/RFJ1/CC01/INEEL/US@INEL  
Subject: Listed Waste Issue TSF-06 Back hoe

Bob, per our conversation today there will be no listed waste issues or codes associated with the waste that will be generated when the backhoe (used to move/remove soil from TSF-06/26 areas) is radiologically decontaminated. Therefore, plans are being laid to begin said equipment decontamination.

If you have any questions, please let me know.

Thanks, Pat



Raymond L Sayer  
01/18/2001 11:49 AM

To: Janet L Rodriguez/HILLJL2/CC01/INEEL/US@INEL, Allen E Jantz/AJZ/CC01/INEEL/US@INEL  
cc: William P Boyd/WPB/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL

Subject: Decontamination backhoe

Hi again. ALL WENT WELL the backhoe was reassembled and returned D&D. Thank you for giving me the opportunity to be responsible for the decontamination of the backhoe. This opportunity gave me some valuable experience that will help me in the future. If and when tasks like this come in the future I would like to be considered.

THANX Ray

## **Appendix F**

### **Future Excavation Necessary for TSF-06, Area B to Achieve Final Remediation Goals**

## **Appendix F**

### **Future Excavation Necessary for TSF-06, Area B to Achieve Final Remediation Goals**

This appendix is a compilation of emails and electronic map attachments developed when the excavation areas were being planned for TSF-06, Area B. Following the calendar year 2000 excavation of TSF-06, Area B contaminated overburden soil, and subsequent sampling of TSF-06, Area B native soils (Appendix D), maps were generated to determine the amount of excavation necessary to meet final remediation goals. As reprinted in this appendix, the maps indicate “Existing Grade Contours” and “Finish Grade Contours.” However, because the remediation planned using these maps was not implemented (due to budget constraints), the finish grade contours were not achieved. The existing grade contours indicate the topography of the site as it existed following remediation in calendar year 2000, but prior to the winterization activities described in Section 7 of this document. Therefore, the current elevations at the site are slightly higher in some locations than those shown as “Existing Grade Contours.”

This appendix includes these maps only to present a complete project history of the site, not to provide a map of actual excavation contours for future remediation. These maps should not be used for future excavation because additional windblown contamination has likely spread to the TSF-06, Area B site since the calendar year 2000 field work was performed. In addition, the potential ditch that ran through TSF-06, Area B that was rumored to have carried radioactively contaminated wastewater has not been investigated.

The current remediation plan for the TSF-06, Area B site includes pre-remediation sampling prior to further excavation in accordance with the *Field Sampling Plan for the Remedial Action Sampling and Field Screening of Group 1 Sites at Waste Area Group 1, Operable Unit 1-10*, Revision 1 (currently in progress).



**Janet L Hill**  
09/08/2000 12:02 PM

To: Christophe A Behm/ABE/CC01/INEEL/US@INEL  
cc: William P Boyd/WPB/CC01/INEEL/US@INEL, Mark D Elliott/MDE/CC01/INEEL/US@INEL

Subject: Excavation Map

Chris, I just got these from Bob Sutherlin this morning, the files that you will need are the first two files, not the wrtf-01.dxf file. The first file is the master file for the TSF-06 and TSF-26 areas, and the second file is just the sampling grid for TSF-06. Please take a look at this data and hopefully we can get together this afternoon to talk about what I need from a map. Thanks.

Janet

----- Forwarded by Janet L Hill/HILLJL2/CC01/INEEL/US on 09/08/2000 11:28 AM -----



Robert W Sutherlin  
09/08/2000 06:40 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:  
Subject: TSF-06



tsf0626.dxf



tsf06grid.dxf



wrtf-01.dxf

Janet, Here is the requested data. All data is NAD-27 State plane and NGVD 1929 Vertical. Craig requested information on the WRRTF-01 Burn Pit and TSF-26. The information on the TSF-06 Grid, stripped version is tsf06grid.dxf, everything for TSF-06 AND 26 is tsf0626.dxf. If there are any questions today I can be reached on pager #4536. Thanks Bob and Dan

(email attachment intentionally not included)



Christophe A Behm  
09/14/2000 03:21 PM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:

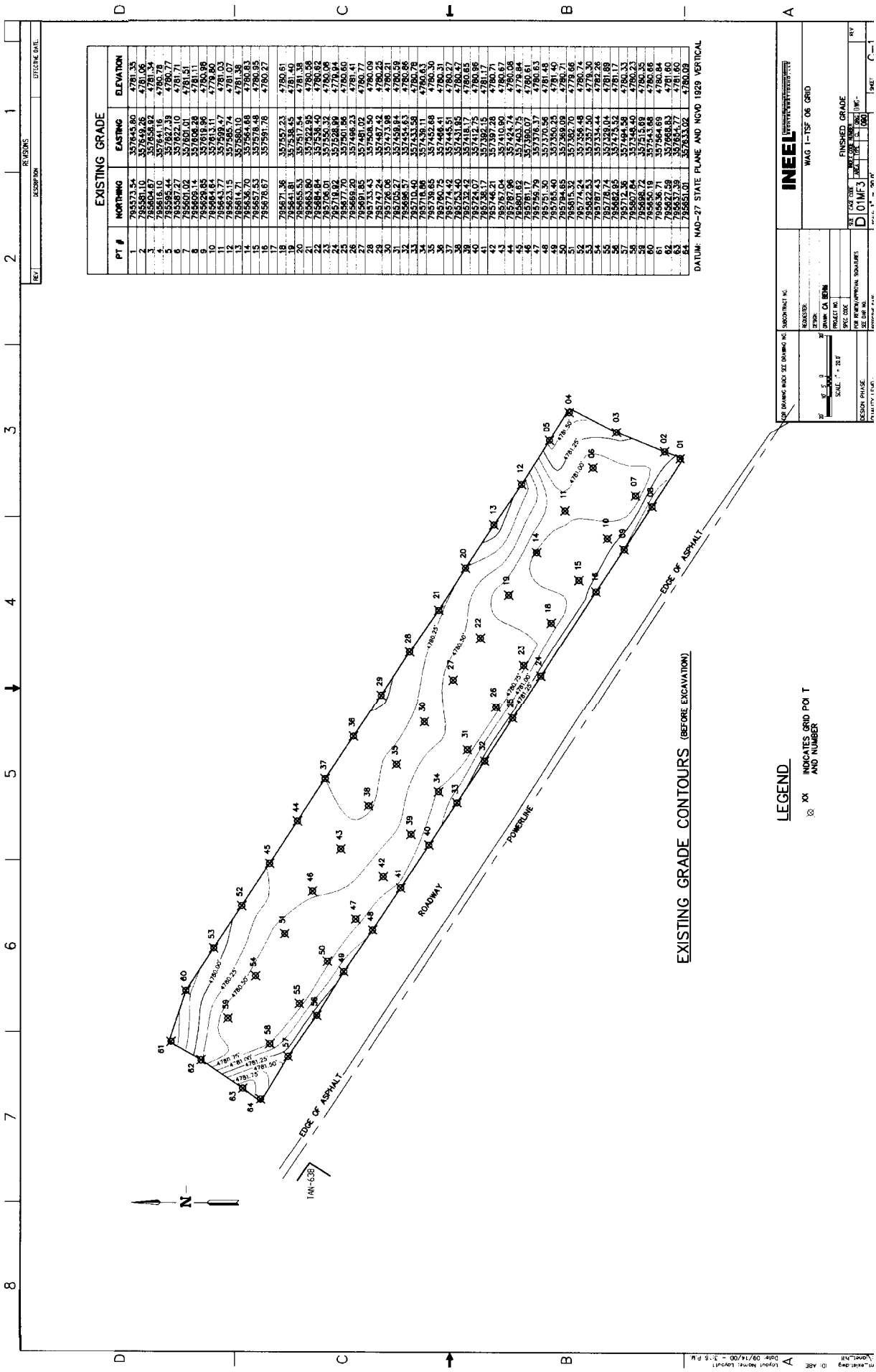
Subject: Excavation Map



fin\_cont.TIF



exist\_cont.TIF







Christophe A Behm  
09/18/2000 07:47 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:

Subject: Excavation

This the the Volume cut sheet for the excavation. Here is another drawign that shows the both the finished and exisitng contours together.



EX\_FIN\_cont.TIF

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PROJECT:

P:\janet\_hill\samples.pro

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--

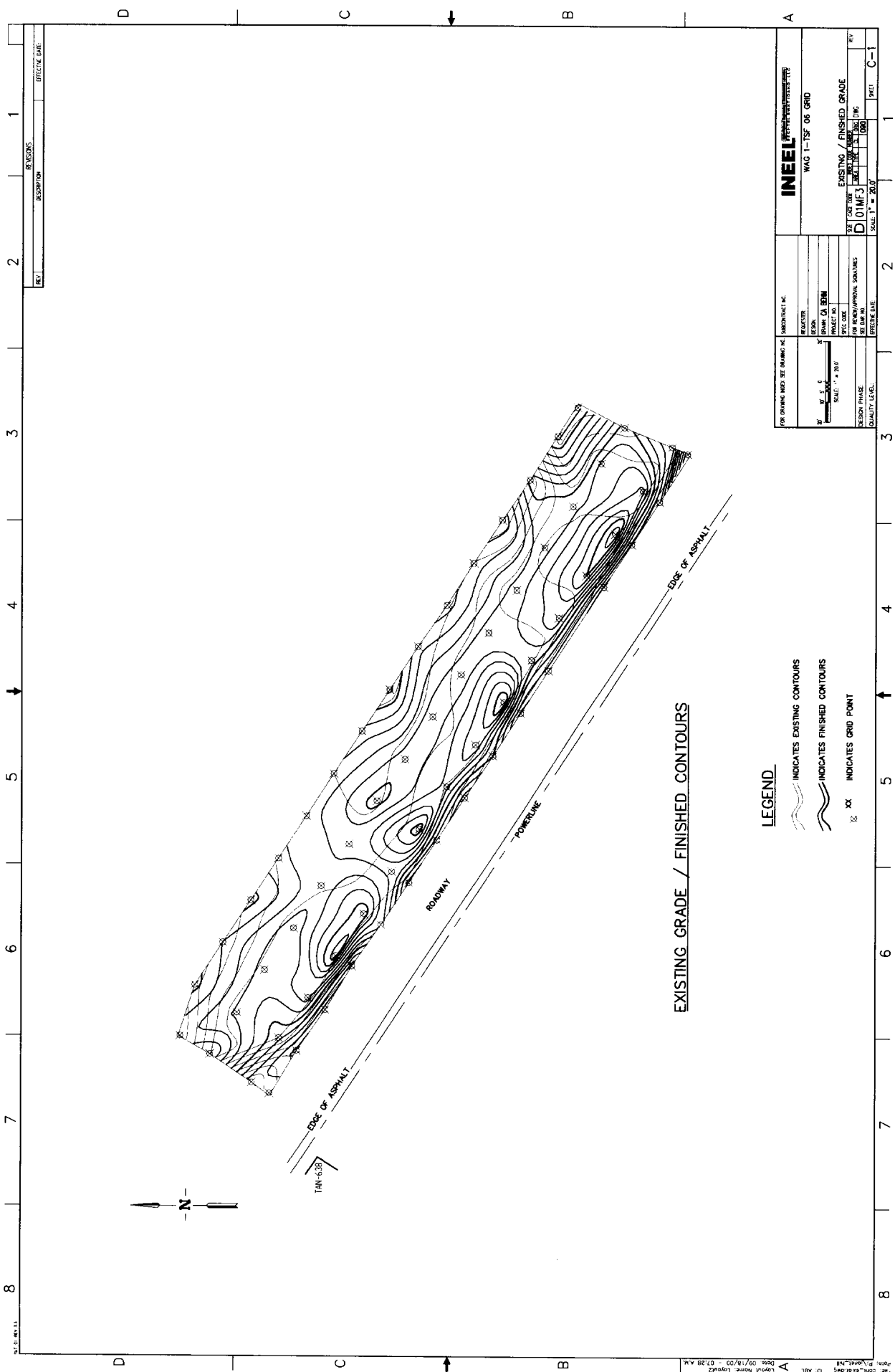
DTM TO DTM VOLUME

Cut and Fill Volumes

-----

Shrinkage/swell factors:	Cut	1.0000	Fill	1.0000
Original DTM Layer Name	# of Points	Final DTM Layer Name	# of Points	
POINTS_EXIST	68	EXCAVATE	63	
Cut Volume (yd3)	Cumulative Cut Volume	Fill Volume (yd3)	Cumulative Fill Volume	
882.4	882.4	0.0	0.0	


**Net Difference: 882.4 yd3 WASTE**





Christophe A Behm  
09/19/2000 11:32 AM

To: Janet L Hill/HILLJL2/CC01//INEEL/US@INEL  
cc:

Subject: depth drawing 



Hope this helps you..... FIN\_DELTATIF

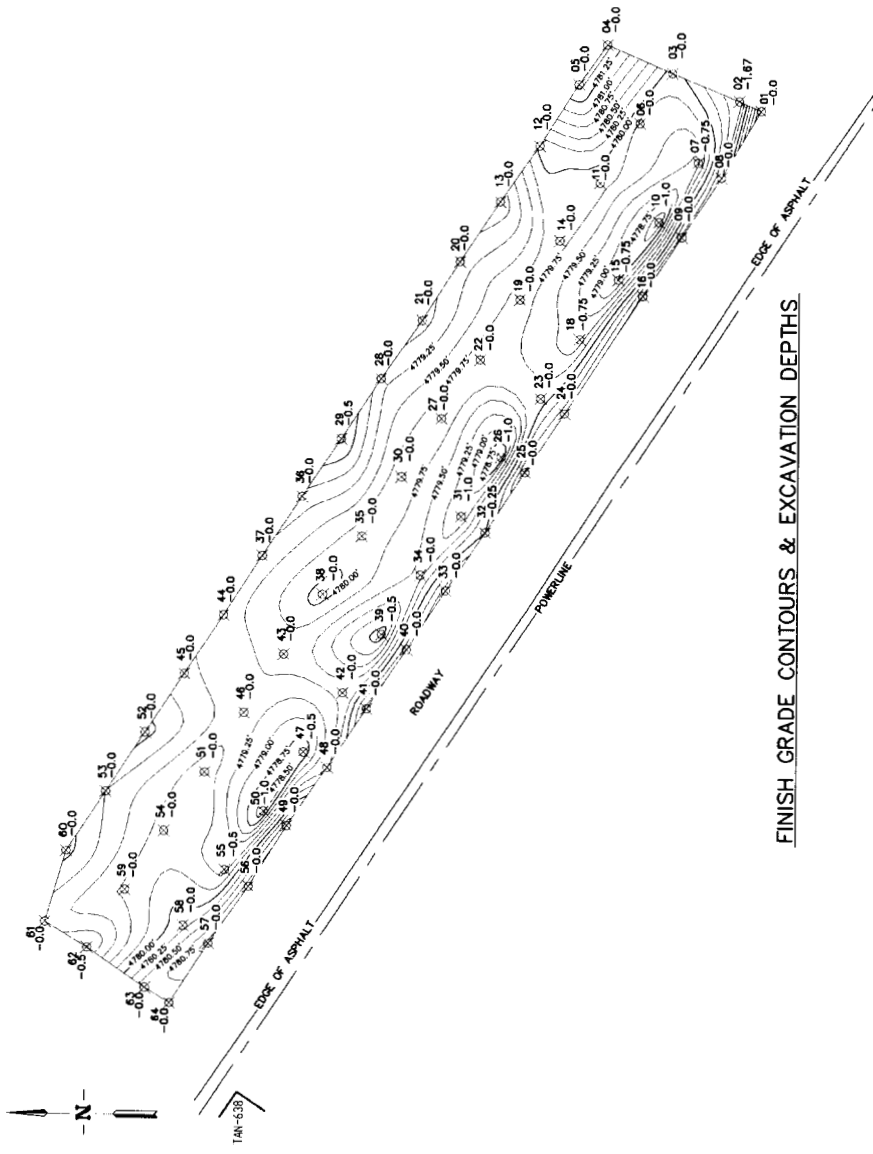


8 7 6 5 4 3 2 1

DATE: 01/11/2011  
PROJECT: 14N-638  
SHEET: 17 OF 17

FINISHED GRADE			
PT #	NORTHING	EASTING	DEPTH FROM EXISTING
1	795573.54	357845.81	4778.68
2	795581.10	357846.26	4780.73
3	795604.67	357858.92	4778.84
4	795617.58	357868.51	4781.80
5	795637.38	357876.77	4783.60
6	795646.16	357841.16	4779.70
7	795595.44	357827.38	4778.19
8	795587.27	357822.10	4780.54
9	795583.63	357808.78	4778.26
10	795509.14	357600.78	4778.26
11	795529.85	357619.86	4778.90
12	795551.01	357633.02	4780.09
13	795564.49	357631.11	4778.90
14	795563.77	357598.72	4778.74
15	795563.15	357585.74	4778.74
16	795561.71	357580.10	4780.80
17	795558.70	357544.68	4778.34
18	795556.53	357578.45	4778.87
19	795576.67	357601.78	4779.19
20	795591.74	357570.92	4778.88
21	795591.74	357570.92	4778.88
22	795591.74	357570.92	4778.88
23	795550.19	357545.68	4778.83
24	795541.81	357538.45	4780.63
25	795555.53	357521.54	4780.80
26	795551.01	357522.85	4778.90
27	795564.84	357522.85	4778.90
28	795506.01	357550.32	4778.16
29	795519.62	357528.99	4778.44
30	795597.72	357515.68	4778.83
31	795597.72	357515.68	4778.83
32	795569.20	357486.23	4778.99
33	795582.95	357476.52	4780.67
34	795591.65	357481.02	4779.44
35	795571.51	357508.10	4779.00
36	795571.51	357508.10	4779.00
37	795571.51	357508.10	4779.00
38	795528.06	357473.88	4780.13
39	795528.06	357473.88	4780.13
40	795528.06	357473.88	4780.13
41	795528.06	357473.88	4780.13
42	795528.06	357473.88	4780.13
43	795528.06	357473.88	4780.13
44	795528.06	357473.88	4780.13
45	795528.06	357473.88	4780.13
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58	795528.06	357473.88	4780.13
59	795528.06	357473.88	4780.13
60	795528.06	357473.88	4780.13
61	795528.06	357473.88	4780.13
62	795528.06	357473.88	4780.13
63	795528.06	357473.88	4780.13
64	795528.06	357473.88	4780.13

-DATUM: NAD-27 STATE PLANE AND NGVD 1929 VERTICAL  
-ALL ELEVATIONS AND DEPTHS ARE IN FEET



### FINISH GRADE CONTOURS & EXCAVATION DEPTHS

#### LEGEND


- INDICATES GRID POINT
- XX - INDICATES DEPTH OF EXCAVATION FROM EXISTING GRADE

PROJECT NO. 14N-638		SHEET NO. 17 OF 17	
DATE: 01/11/2011		BY: [Signature]	
FOR PRELIMINARY SUBMITTAL		FOR PRELIMINARY SUBMITTAL	
DESIGN PHASE		DESIGN PHASE	
SCALE: 1" = 20'		SCALE: 1" = 20'	
DRAWN BY: [Signature]		DRAWN BY: [Signature]	
CHECKED BY: [Signature]		CHECKED BY: [Signature]	
APPROVED BY: [Signature]		APPROVED BY: [Signature]	
INTEL		INTEL	
WAG 1-75' 06 GRID		WAG 1-75' 06 GRID	
FINISHED CONTOURS AND EXCAVATION DEPTHS		FINISHED CONTOURS AND EXCAVATION DEPTHS	
D 01M3		D 01M3	



Christophe A Behm  
09/20/2000 07:21 AM

To: Janet L Hill/HILLJL2/CC01/INEEL/US@INEL  
cc:

Subject: Excavation 



cont\_delta.dwg



cont\_exist.dwg

(email attachment intentionally not included)